Δελτίου δεδομένων ασφαλείας θείο





ΤΜΗΜΑ 1: Αναγνωριστικός κωδικός ουσίας/μείγματος και εταιρείας/επιχείρησης

1.1. Αναγνωριστικός κωδικός προϊόντος

Αναγνώριση της ουσίας:

Όνομα εμπορίου: SOLID SULPHUR, SULPHUR PASTILS, SLATES, FLAKES ×çìέêÞ ïĥìáóβá: θείο Αριθμός CAS: 7704-34-9 Αριθμός EC: 231-722-6 Αριθμός Index: 016-094-00-1 Αριθμός καταχώρησης 01-2119487295-27-XXXX

1.2. Συναφείς προσδιοριζόμενες χρήσεις της ουσίας ή του μείγματος και αντενδεικνυόμενες χρήσεις

Προτεινόμενη χρήση: ΒΙΟΜΗΧΑΝΙΚΗ ΧΡΗΣΗ; ΛΙΠΑΣΜΑ; ΕΠΑΓΓΕΛΜΑΤΙΚΗ ΧΡΗΣΗ; Δείτε το σενάριο έκθεσης στο παράρτημα. Μη προτεινόμενες χρήσεις: Ν.Α.

1.3. Στοιχεία του προμηθευτή του δελτίου δεδομένων ασφαλείας

Προμηθευτής:

ZOLFINDUSTRIA S.r.I. Via San Cassiano 99 28069 - Trecate (NO) ITALY Phone: +39-0321-7901

Ικανός υποκείμενο, αίτιοσ δελτιο ασφαλειας: msds@zolfindustria.it

1.4. Αριθμός τηλεφώνου επείγουσας ανάγκης

Zolfindustria - Phone n. +39-0321-7901 Ελλάδα - Τηλέφωνο Έκτακτης Ανάγκης Κέντρο Δηλητηριάσεων Νοσ. Παίδων Αγλαΐα Κυριακού 0030 210 7793777 Κύπρος - Αριθμός κέντρου δηλητηριάσεων της Κύπρου: 1401

ΤΜΗΜΑ 2: Προσδιορισμός επικινδυνότητας



2.1. Ταξινόμηση της ουσίας ή του μείγματος

Κανονισμός (ΕΚ) αριθ. 1272/2008 (CLP)

Skin Irrit. 2 Προκαλεί ερεθισμό του δέρματος

Δυσμενείς φυσικοχημικές, περιβαλλοντικές επιπτώσεις και επιπτώσεις στην ανθρώπινη υγεία.

Κανένας άλλος κίνδυνος

2.2. Στοιχεία επισήμανσης

Κανονισμός (ΕΚ) αριθ. 1272/2008 (CLP)

Εικονογράμματα και Προειδοποιητική λέξη



Δηλώσεις επικινδυνότητας

Η315 Προκαλεί ερεθισμό του δέρματος

Δηλώσεις προφυλάξεων

P280 Φορέστε γάντια/προστατευτικά ενδύματα.
 P302+P352 ΣΕ ΠΕΡΙΠΤΩΣΗ ΕΠΑΦΗΣ ΜΕ ΤΟ ΔΕΡΜΑ: Πλύντε με άφθονο νερό.
 P362+P364 Βγάλτε τα μολυσμένα ρούχα και πλύντε τα πριν τα ξαναχρησιμοποιήσετε.
 Ειδικές διατάξεις σύμφωνα με το Παράρτημα XVII του REACH και μεταγενέστερες τροποποιήσεις:

Κωδικός δελτιο ZS2(0421)18 Αρ. 1 του/ 10

Καμία **2.3. Άλλοι κίνδυνοι**

Δεν υπάρχουν εξαρτήματα ΑΒΤ/νΡνΒ.

Άλλοι Κίνδυνοι: Κανένας άλλος κίνδυνος

ΤΜΗΜΑ 3: Σύνθεση/πληροφορίες για τα συστατικά

3.1. Ουσίες

Αναγνωρίσεις Ουσίας:	θείο
Αριθμός CAS:	7704-34-9
Αριθμός ΕC:	231-722-6
Αριθμός Index:	016-094-00-1
Αριθμός καταχώρησης	01-2119487295-27-XXXX
3.2. Μείγματα	

N.A.

ΤΜΗΜΑ 4: Μἑτρα πρώτων βοηθειών

4.1. Περιγραφή των μέτρων πρώτων βοηθειών

Σε περίπτωση επαφής με το δέρμα:

Βγάζετε αμέσως από πάνω σας τα μολυσμένα ενδύματα.

Αφαιρέστε τα μολυσμένα ρούχα αμέσως και πετάξτε τα με ασφάλεια.

Ύστερα από επαφή με το δέρμα, πλύντε αμέσως με σαπούνι και άφθονο νερό.

In case of persistent skin irritation consult a doctor.

Σε περίπτωση επαφής με τα μάτια:

Ξεπλύνετε τα μάτια με άφθονη ποσότητα νερού για τουλάχιστον 10-15 λεπτά , κρατώντας ανοικτά τα βλέφαρα για να εξασφαλίσετε ότι έχουν ξεπλυθεί πλήρως.

Προστατέψτε το μη τραυματισμένο μάτι.

Ζητήστε ιατρική βοήθεια

Εάν εμφανιστεί ερεθισμός, θολή όραση ή οίδημα και επιμείνει, συμβουλευθείτε έναν ειδικό ιατρό.

Σε περίπτωση Δυσπεψίας:

Μην προκαλείτε εμετό. Λάβετε ιατρική βοήθεια και δείξτε το SDS και την ετικέτα κινδύνου,

Σε περίπτωση Εισπνοής:

Μετακινήστε τον τραυματία στον καθαρό αέρα και κρατήστε τον ζεστό και σε ξεκούραστη θέση.

4.2. Σημαντικότερα συμπτώματα και επιδράσεις, άμεσες ή μεταγενέστερες

Ερεθισμός ματιού

Βλάβες στο μάτι

Ερεθισμός Δέρματος

Ερύθημα

4.3. Ένδειξη οποιασδήποτε απαιτούμενης άμεσης ιατρικής φροντίδας και ειδικής θεραπείας

Σε περίπτωση ατυχήματος ή αδιαθεσίας, αναζητήστε ιατρική συμβουλή αμέσως (δείξτε τις οδηγίες χρήσης ή το φύλλο δεδομένων ασφαλείας, αν είναι δυνατόν).

ΤΜΗΜΑ 5: Μέτρα για την καταπολέμηση της πυρκαγιάς

5.1. Πυροσβεστικά μέσα

Κατάλληλο μέσο κατάσβεσης:

Foam, extinguishing powder, sprinkling water jet, carbon dioxide.

Μέσα κατάσβεσης που δεν πρέπει να χρησιμοποιηθούν για λόγους ασφαλείας:

Μην χρησιμοποιείτε απευθείας πίδακες νερού επάνω στο φλεγόμενο προϊόν. ; Πρέπει να αποφεύγεται η ταυτόχρονη χρήση αφρού και νερού στη ίδια επιφάνεια διότι το νερό καταστρέφει τον αφρό

5.2. Ειδικοί κίνδυνοι που προκύπτουν από την ουσία ή το μείγμα

Μην εισπνέετε αέρια έκρηξης και ανάφλεξης.

Οι φλόγες που παράγονται από το καιόμενο υλικό είναι βραχείες, έχουν σκούρο κυανό χρώμα τη νύχτα και είναι αόρατες στο φως της ημέρας, εκτός του καπνού και της θερμότητας. ; Το καιόμενο υλικό αποκτά βαθύ μαύρο κόκκινο χρώμα. Επικίνδυνα προϊόντα καύσης: Στα προϊόντα καύσης περιλαμβάνονται οξείδια του θείου (SO2 and SO3) και υδρόθειο H2S.

5.3. Συστάσεις για τους πυροσβέστες

Να φοράτε κατάλληλη προστατευτική ένδυση (κράνος, γυαλιά, γάντια

πυρίμαχα, μπότες) και να προστατεύετε τα αναπνευστικά όργανα (αυτοδύναμες αναπνευστικές συσκευές).

Χρησιμοποιήστε κατάλληλη συσκευή αναπνοής.

Ψύξτε τα δοχεία που εκτίθενται στη φωτιά με νερό.

Μετακινήστε τα μη κατεστραμμένα κοντέινερ από την άμεση επικίνδυνη περιοχή, αν μπορείτε, με ασφάλεια.

Συλλέξτε ξεχωριστά το μολυσμένο νερό κατάσβεσης. Αυτό δεν πρέπει να πετιέται στην αποχέτευση.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.

ΤΜΗΜΑ 6: Μέτρα για την αντιμετώπιση τυχαίας έκλυσης

6.1. Προσωπικές προφυλάξεις, προστατευτικός εξοπλισμός και διαδικασίες έκτακτης ανάγκης

Για προσωπικό μη έκτακτης ανάγκης:

Κρατήστε το μη εμπλεκόμενο προσωπικό μακριά από την περιοχή της διαρροής. Θέστε σε ετοιμότητα το προσωπικό έκτακτων καταστάσεων. ; Αποφύγετε την άμεση επαφή με το υλικό που απελευθερώθηκε.

Για άτομα που προσφέρουν πρώτες βοήθειες:

Σταματήστε τη διαρροή εάν είναι ασφαλές να το πράξετε. ; Αποφύγετε την άμεση επαφή με το υλικό που απελευθερώθηκε. ; Στις περιπτώσεις που η παρουσία επικίνδυνων ποσοτήτων H2S γύρω από τη διαρροή προϊόντος είναι αποδεδειγμένη ή ύποπτη, επιπρόσθετες ή ειδικές ενέργειες μπορεί να δικαιολογούνται, συμπεριλαμβανομένης της περιορισμένης πρόσβασης, της χρήσης ειδικού προστατευτικού εξοπλισμού, των διαδικασιών και της εκπαίδευσης του προσωπικού.

Να φοράτε εξοπλισμό προστασίας

Μεταφέρετε άτομα σε ασφάλεια.

Δείτε τα προστατευτικά μέτρα όπως στα σημεία 7 και 8.

6.2. Περιβαλλοντικές προφυλάξεις

Σταματήστε ή περιορίστε τη διαρροή στην πηγή της, εάν είναι ασφαλές να το πράξετε.

Μην επιτρέψετε να μπει στο έδαφος/υπέδαφος. Μην επιτρέψετε να μπει στην επιφάνεια του νερού ή στις αποχετεύσεις.

Κατακρατήστε το μολυσμένο νερό πλύσης και πετάξτε το.

Σε περίπτωση διαφυγής αέρα ή εισόδου μέσα στους σωλήνες νερού, στο έδαφος ή στις αποχετεύσεις, να πληροφορήσετε τις αρμόδιες αρχές.

6.3. Μέθοδοι και υλικά για περιορισμό και καθαρισμό

Πλύντε με ἁφθονο νερό.

Συλλέξτε το ελεύθερο προϊόν με τα κατάλληλα μηχανικά μέσα.

Dispose of the collected material in accordance with the current regulations.

6.4. Παραπομπή σε άλλα τμήματα

Δείτε επίσης το κεφάλαιο 8 και 13

ΤΜΗΜΑ 7: Χειρισμός και αποθήκευση

7.1. Προφυλάξεις για ασφαλή χειρισμό

Αποφύγετε την επαφή με το δέρμα και τα μάτια; Μη αναπνέετε την σκόνη. Βλέπετε και την επόμενη παράγραφο 8.; Κίνδυνος εκρηκτικών μειγμάτων από σκόνες και αέρα.

Μην χρησιμοποιήσετε άδειο κοντέινερ πριν αυτό καθαριστεί.

Πριν κάνετε λειτουργίες μεταφοράς, σιγουρευτείτε ότι δεν υπάρχει υπολείμματα ασύμβατων υλικών μέσα στα κοντέινερ.

Συστάσεις για τη γενική επαγγελματική υγιεινή:

Μολυσμένα ρούχα θα πρέπει να αλλάζονται πριν μπείτε σε περιοχές τροφίμων.

Κατά τη διάρκεια της εργασίας μην τρώτε ούτε πίνετε.

Δείτε επίσης το κεφάλαιο 8 για προτεινόμενο εξοπλισμό προστασίας.

7.2. Συνθήκες ασφαλούς φύλαξης, συμπεριλαμβανομένων τυχόν ασυμβίβαστων καταστάσεων

Κρατηθείτε μακριά από φαγητό, ποτό και τροφοδοσία.

Διατηρήστε τα δοχεία ερμητικά κλειστά, με την κατάλληλη επισήμανση.

Ασύμβατες ύλες:

Διατηρείτε μακριά από οζεισώτικά

Υπόδειξη για τους χώρους:

Διατηρείτε μακριά από εστίες φωτιάς, σπίθες και πηγές θερμότητας. Αποφύγετε την κατευθείαν έκθεση στον ήλιο.; Λάβετε προληπτικά μέτρα κατά της στατικής εκφόρτισης.

Χώροι κατάλληλα αεριζόμενοι.

7.3. Ειδική τελική χρήση ή χρήσεις

Συστάσεις

Κανένας ιδιαίτερα

ΤΜΗΜΑ 8: Ἐλεγχος της ἑκθεσης/ατομική προστασία

8.1. Παράμετροι ελέγχου

Τὑπος Ορίου Επαγγε λματικ ής Έκθεση ς (ΟΕΕ)	χώρα	Ανώτ ατο όριο	Μακροπρ όθεσμα mg/m3	Μακροπρ όθεσμα ppm	Βραχυπρ όθεσμα mg/m3	Βραχυπρ όθεσμα ppm	Συμπεριφ ορά	Σημειώσει
National	LATVIA		6.000					
National	ROMANIA				15.000			Dust - 15 minutes average value
ACGIH	NNN		3.000					respirable fraction
ACGIH	NNN		10.000					inhalable fraction

Δεν Προέκυψε Επίπεδο Αποτελέσματος. (DNEL)

Βιομηχανικός εργαζόμενος	Μη μισθωτός επαγγελματία ς	Καταναλωτής	Οδός εκθέσεως σε ακτινοβολί α	Συχνότητα ἐκθεσης	Σημειώσεις
4.000 mg/m3			Δια μέσου ανθρώπινης εισπνοής	Μακροπρόθεσμο, συστηματικές συνέπειες	
		0.500 mg/kg	Ανθρώπινη στοματική	Μακροπρόθεσμο, συστηματικές συνέπειες	
		0.500 mg/kg	Ανθρώπινη διά μέσου δέρματος	Μακροπρόθεσμο, συστηματικές συνέπειες	

8.2. Έλεγχοι ἑκθεσης

Μέτρα ατομικής προστασίας:

Η επιλογή του εξοπλισμού ατομικής προστασίας ποικίλει ανάλογα με τις συνθήκες πιθανής έκθεσης και τον κίνδυνο των συνθηκών εργασίας.

Η τελική επιλογή του εξοπλισμού ατομικής προστασίας εξαρτάται από την αξιολόγηση κινδύνου.

Ο προσωπικός προστατευτικός εξοπλισμός (ΠΠΕ) πρέπει να ανταποκρίνεται στα συνιστώμενα εθνικά πρότυπα. Απευθυνθείτε στους προμηθευτές ΠΠΕ για να βεβαιωθείτε σχετικά.

Για πληροφορίες σχετικά με τον εξοπλισμό επείγουσας προστασίας (πυρκαγιά ή τυχαία απελευθέρωση), βλ. Ενότητες 5 και 6. Προστασία των ματιών:

Προστατευτικά γυαλιά χημικού κινδύνου (με πλευρική προστασία).; Πρότυπο τεχνικής αναφοράς: UNI EN 166

Προστασία του δέρματος:

Προστατευτική ενδυμασία κατάλληλη για χημικές ουσίες.; Πρότυπο τεχνικής αναφοράς: UNI EN 13034

Προστασία των χεριών:

Η επιλογή των κατάλληλων γαντιών εξαρτάται όχι μόνο από το υλικό αλλά και από άλλα ποιοτικά χαρακτηριστικά που διαφέρουν από τον έναν κατασκευαστή στον άλλο.

Οι συνθήκες εργασίας μπορούν να επηρεάσουν σημαντικά την καταλληλότητα και ανθεκτικότητα των γαντιών. Επικοινωνήστε με τον κατασκευαστή των γαντιών για συγκεκριμένες πληροφορίες σχετικά με την καταλληλότητα και αντοχή των γαντιών σε συγκεκριμένες συνθήκες εργασίας.

Χρησιμοποιείτε τα κατάλληλα γάντια ελεγμένα σύμφωνα με τον τύπο EN374.

Αναπνευστική προστασία:

Ανάλογα με το δυναμικό έκθεσης, επιλέξτε τις συσκευές προστασίας του αναπνευστικού που είναι κατάλληλες για τις συγκεκριμένες συνθήκες χρήσης και συμμορφώνονται με την ισχύουσα νομοθεσία.

Θερμικοί Κίνδυνοι:

N.A.

Έλεγχοι περιβαλλοντικής ἑκθεσης:

Comply with the applicable environmental regulations limiting discharge to air, water and soil.

Μέτρα υγιεινής και τεχνικά

N.A.

ΤΜΗΜΑ 9: Φυσικές και χημικές ιδιότητες

9.1. Στοιχεία για τις βασικές φυσικές και χημικές ιδιότητες Φυσική κατάσταση: Στερεό Όψη και χρώμα: Στερεό Οσμή: σάπια αυγά Κατώφλι Οσμής: Ν.Α. pH: N.A. Σημείο τήξης / σημείο ψύξης: 113 - 120 °C (101,3 kPa; OECD 102) Αρχικό σημείο βρασμού και εύρος βρασμού: 444,6 °C (101,3 kPa) Σημείο ανάφλεξης: 190-220 °C Ρυθμός Εξάτμισης: Ν.Α. Ανώτερη/κατώτερη αναφλεξιμότητα ή όρια έκρηξης: Ν.Α. Πυκνότητα των ατμών: Ν.Α. Πίεση ατμού: 0,14 mPa (20 °C, OECD 104) Σχετική πυκνότητα: ±2 Kg/dm3 Υδροδιαλυτότητα: Insoluble Διαλυτότητα σε λάδι: Ν.Α. Συντελεστής διαχωρισμού (ν-οκτανολ/νερό): Ασήμαντο Θερμοκρασία αυτό-ανάφλεξης: Ν.Α. Θερμοκρασία αποσύνθεσης: Ν.Α. Ιξώδες: Ν.Α. Εκρηκτικές ιδιότητες: Ν.Α. Καύσιμες υποβοηθούμενες ιδιότητες: Ν.Α. Ανάφλεξη στερεά/αέρια: Ν.Α. Πτητικά Οργανικά Μείγματα - VOC = N.A. Χαρακτηριστικές ιδιότητες των ομάδων των ουσιών Ν.Α.

9.2. Άλλες πληροφορίες

Αναμιξιμότητα: Ν.Α. Επαγωγικότητα: Ν.Α.

ΤΜΗΜΑ 10: Σταθερότητα και αντιδραστικότητα

10.1. Αντιδραστικότητα

Σταθερό σε κανονικές συνθήκες.

10.2. Χημική σταθερότητα

Σταθερό σε κανονικές συνθήκες.

10.3. Πιθανότητα επικίνδυνων αντιδράσεων

Σταθερό σε κανονικές συνθήκες.

10.4. Συνθήκες προς αποφυγήν

Αποφύγετε τη δημιουργία σκόνης.; Κρατήστε μακριά από θερμότητα/σπινθήρες/ακάλυπτες φλόγες/θερμές επιφάνειες.

10.5. Μη συμβατά υλικά

οξέα, αλκάλια, ΑλογονουΧΑ, οξειδωτικά

10.6. Επικίνδυνα προϊόντα αποσύνθεσης

Τοξικά αέρια

ΤΜΗΜΑ 11: Τοξικολογικές πληροφορίες

11.1. Πληροφορίες για τις τοξικολογικές επιπτώσεις

Τοξικολογικές πληροφορίες για την ουσία

 α) οξεία τοξικότητα 	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
	LC50 Εισπνοή Αρουραίος >= 5.43000 mg/l 4h - βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 403
	LD50 Στοματικώς Αρουραίος >= 2000.00000 mg/kg - βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 401
	LD50 Δέρμα Αρουραίος >= 2000.00000 mg/kg - βάσει των διαθέσιμων δεδομένων, τα

	κριτήρια ταξινόμησης δεν πληρούνται ΕΡΑ ΟΡΡ 81-2
β) διάβρωση και ερεθισμός του δέρματος	Το προϊόν ταξινομείται: Skin Irrit. 2(H315)
	Ερεθιστικό Δέρματος Θετικό - OECD 404
γ) σοβαρή βλάβη/ερεθισμός των ματιών	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
	- βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 405
δ) αναπνευστική ευαισθητοποίηση ή ευαισθητοποίηση του δέρματος	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
	Ευαισθητοποίηση Δέρματος Αρνητικό - βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 406
ε) μεταλλαξιγένεση γεννητικών κυττάρων	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
	Μεταλλαξογένεση Αρνητικό - βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 471 - Ames test
στ) καρκινογἑνεση	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
ζ) τοξικότητα για την αναπαραγωγή	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
η) STOT-εφάπαξ έκθεση	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
θ) STOT-επανειλημμένη έκθεση	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
	Μη Παρατηρημένο Ανάποδο Επίπεδο Στοματικώς Αρουραίος 1000.00000 mg/kg 90 days - βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται OECD 408
ι) τοξικότητα αναρρόφησης	Μη κατηγοριοποιημένο
	βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.

ΤΜΗΜΑ 12: Οικολογικές πληροφορίες

12.1. Τοξικότητα

Χρησιμοποιείτε σύμφωνα με τις ορθές εργασιακές πρακτικές, αποφεύγοντας να διασκορπίσετε το προϊόν στο περιβάλλον. Οικο-Τοξικολογική Ενημέρωση:

Στη λίστα των Εco-τοξικολογικών ιδιοτήτων του προϊόντος

Δεν ταξινομούνται για περιβαλλοντικούς κινδύνους

- βάσει των διαθέσιμων δεδομένων, τα κριτήρια ταξινόμησης δεν πληρούνται.
- a) Οξεία τοξικότητα του ύδατος : ΕC50 Ιχθύς Oncorhynchus mykiss 5.000 μg/L 96h OECD 203
- a) Οξεία τοξικότητα του ύδατος : NOEC Άλγη > 0.005 mg/L 72h OECD 201
- a) Οξεία τοξικότητα του ύδατος : ΕC50 Δάφνια > 5.000 μg/L 48h OECD 202
- b) Χρονία τοξικότητα του ύδατος : NOEC Δάφνια > 100.000 mg/L 504h OECD 211

12.2. Ανθεκτικότητα και ικανότητα αποδόμησης

N.A.

12.3. Δυνατότητα βιοσυσσώρευσης

Βιοσυσσώρευση

Μη βιοσυσσωρευτικός

12.4. Κινητικότητα στο έδαφος

12.5. Αποτελέσματα της αξιολόγησης ΑΒΤ και αΑαΒ

Δεν υπάρχουν εξαρτήματα ABT/vPvB.

12.6. Άλλες αρνητικές επιπτώσεις

N.A.

ΤΜΗΜΑ 13: Στοιχεία σχετικά με τη διάθεση

13.1. Μέθοδοι διαχείρισης αποβλήτων

Εάν είναι δυνατόν ανακτάτε. Ενεργείτε σύμφωνα με τις ισχύουσες τοπικές και εθνικές διατάξεις.

ΤΜΗΜΑ 14: Πληροφορίες σχετικά με τη μεταφορά 14.1. Αριθμός ΟΗΕ 1350 14.2. Οικεία ονομασία αποστολής ΟΗΕ ADR-Όνομα Αποστολής: ΘΕΙΟ ΙΑΤΑ-Τεχνικό όνομα: SULPHUR IMDG-Τεχνικό όνομα: SULPHUR 14.3. Τάξη/-εις κινδύνου κατά τη μεταφορά ADR-Οδική: 4.1 ΙΑΤΑ-Κατηγορία: 4.1 IMDG-Κατηγορία: 4.1 14.4. Ομάδα συσκευασίας ADR-Ομάδα Συσκευασίας: ΙΙΙ ΙΑΤΑ-Ομάδα συσκευασίας: ΙΙΙ IMDG-Ομάδα συσκευασίας: III 14.5. Περιβαλλοντικοί κίνδυνοι Θαλάσσιος ρύπος: Όχι Περιβαλλοντικό Μολυσματικό: Όχι 14.6. Ειδικές προφυλάξεις για τον χρήστη Οδικές και σιδηροδρομικές (ADR-RID): ADR-Ετικέτα: 4.1 ADR - Αριθμός αναγνώρησης κινδύνου: 40 ADR-Ειδικές Προϋποθέσεις: 242 ADR-Κωδικός περιορισμού σε σήραγγα: 3 (Ε) Αεροπορικές (ΙΑΤΑ): ΙΑΤΑ-Αεροσκάφος Επιβατών: 446 ΙΑΤΑ-Αεροσκάφος Εμπορεύματος: 449 ΙΑΤΑ-Ετικέτα: 4.1 ΙΑΤΑ-Δευτερεύοντες κίνδυνοι: -IATA-Erg: 3L ΙΑΤΑ-Ειδικές Προϋποθέσεις: Α105 Α803 Θαλάσσιες (IMDG): IMDG-Κανόνας Στοιβασίας: Category A SW1 ΙΜDG-Σημείωση Στοιβασίας: SG17 IMDG-Δευτερεύοντες κίνδυνοι: -IMDG-Ειδικές Προϋποθέσεις: 242 967 IMDG-Σελίδα: N/A IMDG-Ετικέτα: N/A IMDG-EMS: F-A, S-G IMDG-MFAG: N/A 14.7. Χύδην μεταφορά σύμφωνα με το παράρτημα ΙΙ της σύμβασης MARPOL και του κώδικα IBC

Κωδικός δελτιο ZS2(0421)18Αρ. 7 του/ 10

N.A.

ΤΜΗΜΑ 15: Στοιχεία νομοθετικού χαρακτήρα

15.1. Κανονισμοί/νομοθεσία σχετικά με την ασφάλεια, την υγεία και το περιβάλλον για την ουσία ή το μείγμα Οδηγία 98/24/ΕΚ (Κίνδυνοι που σχετίζονται με χημικούς παράγοντες εργασίας) Κανονισμός (ΕΚ) αριθ. 1907/2006 (REACH) Κανονισμός (ΕΚ) αριθ. 1272/2008 (CLP) Κανονισμός (ΕΚ) αριθ. 790/2009 (ΑΤΡ 1 CLP) και (ΕΕ) αριθ. 758/2013 Κανονισμός (ΕΕ) αριθ. 286/2011 (ATP 2 CLP) Κανονισμός (ΕΕ) αριθ. 618/2012 (ATP 3 CLP) Κανονισμός (ΕΕ) αριθ. 487/2013 (ATP 4 CLP) Κανονισμός (ΕΕ) αριθ. 944/2013 (ATP 5 CLP) Κανονισμός (ΕΕ) αριθ. 605/2014 (ATP 6 CLP) Κανονισμός (ΕΕ) αριθ. 2015/1221 (ΑΤΡ 7 CLP) Κανονισμός (ΕΕ) αριθ. 2016/918 (ATP 8 CLP) Κανονισμός (ΕΕ) αριθ. 2016/1179 (ΑΤΡ 9 CLP) Κανονισμός (ΕΕ) αριθ. 2017/776 (ΑΤΡ 10 CLP) Κανονισμός (ΕΕ) αριθ. 2018/669 (ΑΤΡ 11 CLP) Κανονισμός (ΕΕ) αριθ. 2018/1480 (ATP 13 CLP) Κανονισμός (ΕΕ) αριθ. 2019/521 (ATP 12 CLP) Κανονισμός (ΕΕ) 2015/830 Περιορισμοί που σχετίζονται με το προϊόν ή τις περιεχόμενες ουσίες σύμφωνα με το Παράρτημα XVII του Κανονισμού (ΕΚ) 1907/2006 (REACH) και μεταγενέστερες τροποποιήσεις: Περιορισμοί που αφορούν το προϊόν: Καμία Περιορισμοί που αφορούν τις περιεχόμενες ουσίες: Καμία Παροχές που σχετίζονται με την οδηγία ΕΕ 2012/18 (Seveso III):

N.A.

Κανονισμού (ΕΕ) αριθ. 649/2012 (ο κανονισμός ΣΜΕ)

Δεν υπάρχουν καταλογογραφημένες ουσίες

Όπου είναι εφαρμοστέα, αναφερόσαστε στα ακόλουθα πρότυπα:

Γερμανική Ταξινόμηση Επικινδυνότητας Νερού. Κλάση 1: ελαφρώς επικίνδυνο για το νερό. ΟΥΣΙΕΣ SVHC:

Κανένα Δεδομένο Διαθέσιμο

15.2. Αξιολόγηση χημικής ασφάλειας

Αξιολόγηση χημικής ασφάλειας έχει γίνει για την ουσία

Ουσίες για τις οποίες μια Αξιολόγηση χημικής ασφάλειας έχει διεξαχθεί:

θείο

ΤΜΗΜΑ 16: Άλλες πληροφορίες

Το έγγραφο αυτό καταρτίστηκε από αρμόδιο ατομο το οποίο εκπαιδεύτηκε κατάλληλα.

κυριότερες βιβλιογραφικές πηγές:

ECDIN - Δεδομένα περιβαλλοντικών χημικών ουσιών και δίκτυο πληροφόρησης - Κοινό Ερευνητικό Κέντρο, Επιτροπή Ευρωπαικών Κοινοτήτων

SAX's ΕΠΙΚΙΝΔΥΝΕΣ ΙΔΙΟΤΗΤΕΣ ΒΙΟΜΗΧΑΝΙΚΩΝ ΥΛΙΚΩΝ - Όγδοη ἑκδοση - Van Nostrand Reinold

Οι πληροφορίες που περιέχονται ενταύθα βασίζονται στις γνώσεις μας στην ανωτέρω αναγραφόμενη ημερομηνία. Αναφέρονται μόνο στο υποδεικνυόμενο προϊόν και δεν συνιστούν εγγύηση ιδιαιτέρων ποιοτήτων.

Ο χρήστης πρέπει να βεβαιωθεί για την καταλληλότητα και την πληρότητα αυτών των πληροφοριών σε σχέση με την ιδιαίτερη χρήση την οποία πρέπει να κάνει.

Αυτό το δελτίο ακυρώνει και αντικαθιστά κάθε προηγούμενη έκδοση.

Λεζάντα για συντομεύσεις και ακρόνυμα που χρησιμοποιούνται στο φύλλο των δεδομένων ασφαλείας:

ACGIH: Αμερικανικό Συνέδριο Κυβερνητικών Υγιεινολόγων της Βιομηχανίας

ADR: Ευρωπαϊκή Συμφωνία που αφορά τη Διεθνή Οδική Μεταφορά Επικινδύνων Εμπορευμάτων.

AND: Ευρωπαϊκή συμφωνία για τις διεθνείς μεταφορές επικίνδυνων εμπορευμάτων μέσω εσωτερικών πλωτών οδών

ΑΤΕ: Εκτίμηση Οξείας Τοξικότητας

ΑΤΕπίχ: Εκτίμηση οξείας τοξικότητας (Μείγματα)

BCF: Παράγοντας Βιολογικής Συγκέντρωσης BEI: Δείκτης Βιολογικής Έκθεσης BOD: Ζήτηση Βιοχημικού Οξυγόνου CAS: Υπηρεσία Χημικών Συνόψεων (τμήμα της Αμερικανικής Ένωσης Χημικών). CAV: Κέντρο Δηλητηριάσεων CE: Ευρωπαϊκή Κοινότητα CLP: Ταξινόμηση, Ετικετοποίηση, Συσκευασία. CMR: Καρκινογόνο, Μεταλλαξιογόνο και Τοξικό για αναπαραγωγή COD: Ζήτηση Χημικού Οξυγόνου COV: Πτητική Οργανική Ένωση CSA: Αξιολόγηση Χημικής Ασφάλειας CSR: Αναφορά Χημικής Ασφάλειας DMEL: Επίπεδο Ελάχιστης Προκύπτουσας Συνέπειας DNEL: Δεν Προέκυψε Επίπεδο Αποτελέσματος. DPD: Οδηγία Επικίνδυνων Ετοιμασιών DSD: Οδηγία Επικίνδυνων Ουσιών ΕC50: Ήμισυ Μέγιστη Αποτελεσματική Συγκέντρωση ΕСΗΑ: Ευρωπαϊκό Πρακτορείο Χημικών ΕΙΝΕCS: Ευρωπαϊκή Απογραφή των Υπάρχοντων Εμπορεύσιμων Χημικών Ουσιών. ES: Σενάριο έκθεσης GefStoffVO: Διάταγμα περί Επικίνδυνων Ουσιών, Γερμανία. GHS: Παγκοσμίως Εναρμονισμένο Σύστημα Ταξινόμησης και Ετικετοποίησης των Χημικών. IARC: Διεθνές Πρακτορείο Έρευνας κατά του Καρκίνου ΙΑΤΑ: Διεθνής Ένωση Αερομεταφορών. ΙΑΤΑ-DGR: Κανονισμός Επικίνδυνων Εμπορευμάτων από την "Διεθνή Ένωση Αερομεταφορών" (ΙΑΤΑ). ΙC50: Ήμισυ μέγιστη ανασταλτική συγκέντρωση ΙCAO: Διεθνής Οργανισμός Πολιτικής Αεροπορίας. ICAO-TI: Τεχνικές Οδηγίες από το "Διεθνή Οργανισμό Πολιτικής Αεροπορίας" (ICAO). IMDG: Διεθνής Ναυτιλιακός Κώδικας Επικίνδυνων Εμπορευμάτων. ΙΝΟΙ: Διεθνής Ονοματολογία Συστατικών Κοσμετολογίας. IRCCS: Εθνικό Ίδρυμα Έρευνας, Νοσηλείας και Υγειονομικής Περίθαλψης KAFH: KAFH KSt: Συντελεστής έκρηξης. LC50: Θανατηφόρος συγκέντρωση, για 50 τοις εκατό του πληθυσμού δοκιμής. LD50: Θανατηφόρος δόση,50 τοις εκατό του πληθυσμού δοκιμής. LDLo: Χαμηλή Θανατηφόρα Δόση Ν.Α.: Δεν Εφαρμόζεται Ν/Α: Δεν Εφαρμόζεται N/D: Δεν καθορίστηκε/Δεν διατίθεται ΝΑ: Μη διαθέσιμο NIOSH: Εθνικό Ινστιτούτο Επαγγελματικής Ασφάλειας και Υγείας NOAEL: Δεν Παρατηρήθηκε Επίπεδο Δυσμενών Επιπτώσεων OSHA: Διοίκηση Επαγγελματικής Ασφάλειας και Υγείας PBT: Ανθεκτικό, Βιοσυσσωρεύσιμο και Τοξικό PGK: Οδηγίες συσκευασίας PNEC: Δεν Προβλέφθηκε Συγκέντρωση Αποτελέσματος. PSG: Επιβάτες RID: Κανονισμός Σχετικά με τη Διεθνή Μεταφορά Επικίνδυνων Εμπορευμάτων με Σιδηρόδρομο. STEL: Βραχυπρόθεσμο όριο Έκθεσης. STOT: Τοξικότητα Οργάνου Ειδικού Στόχου. TLV: Περιορισμένη Τιμή Κατωφλιού. TWATLV: Οριακή Τιμή Κατωφλιού για τη Χρονικά Σταθμισμένη Μέση Τιμή της 8ωρης ημέρας. (Πρότυπο ACGIH). νΡνΒ: Πολύ Ανθεκτικό, Πολύ Βιοσυσσωρεύσιμο. WGK: Γερμανική Ταξινόμηση Επικινδυνότητας Νερού. Παράγραφοι τροποιημένες από την προηγούμενη αναθεώρηση: Δελτίου δεδομένων ασφαλείας - 1. ΣΤΟΙΧΕΙΑ ΤΗΣ ΟΥΣΙΑΣ/ΠΑΡΑΣΚΕΥΑΣΜΑΤΟΣ ΚΑΙ ΕΤΑΙΡΕΙΑΣ/ΕΠΙΧΕΙΡΗΣΗΣ - 2. ΠΕΡΙΓΡΑΦΗ των κινδύνων - 3. ΣΥΝΘΕΣΗ/ΠΛΗΡΟΦΟΡΙΑ ΓΙΑ ΤΑ ΣΥΣΤΑΤΙΚΑ

- 4. ΠΡ ΩΤΕΣ ΒΟΗΘΕΙΕΣ
- 5. ΜΕΤΡΑ ΓΙΑ ΤΗΝ ΚΑΤΑΠΟΛΕΜΗΣΗ ΤΗΣ ΠΥΡΚΑΓΙΑΣ
- 6. ΜΕΤΡΑ ΓΙΑ ΤΗΝ ΑΝΤΙΜΕΤ ΩΠΙΣΗ ΤΥΧΑΙΑΣ ΕΚΛΥΣΗΣ

- 7. ΧΕΙΡΙΣΜΟΣ ΚΑΙ ΑΠΟΘΗΚΕΥΣΗ
- 8. ΕΛΕΓΧΟΣ ΤΗΣ ΕΚΘΕΣΗΣ ΣΤΟ ΠΡΟΪΟΝΤΑ/ΑΤΟΜΙΚΗ ΠΡΟΣΤΑΣΙΑ
- 9. $\Phi Y\Sigma IKE\Sigma$ KAI XHMIKES IΔΙΟΤΗΤΕΣ
- 10. ΣΤΑΘΕΡΟΤΗΤΑ ΚΑΙ ΑΝΤΙΔΡΑΣΙΜΟΤΗΤΑ
- 11. ΤΟΞΙΚΟΛΟΓΙΚΑ ΣΤΟΙΧΕΙΑ
- 12. ΟΙΚΟΛΟΓΙΚΑ ΣΤΟΙΧΕΙΑ
- 13. STOIXEIA SXETIKA ME TH ΔΙΑΘΕΣΗ (ΕΞΑΛΕΙΨΗ)
- 14. ΣΤΟΙΧΕΙΑ ΣΧΕΤΙΚΑ ΜΕ ΤΗ ΜΕΤΑΦΟΡΑ
- 15. STOIXEIA SXETIKA ME TIS KANONISTIKES ΔΙΑΤΑΞΕΙΣ
- 16. ΑΛΛΑ ΣΤΟΙΧΕΙΑ

EC-No.: 231-722-6 CAS-No.: 7704-34-9 REACH registration No: 01-2119487295-27

SUMMARY

1.	Manufacture of substance - industrial	2
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4.	Formulation & (re)packing of substances and mixtures - industrial	17
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1.01: Manufacture of substance

1.1. Title section

1. Manufacture of substance - industrial

	1					
Environment						
GEN-01	General measu	ures (skir	n irritants)	ERC1, ESVOC SPERC 1.1.v1		
Worker						
CS15	General expos	ures (clo	sed systems)	PROC1		
CS15	General expos Outdoor	ures (clo	sed systems) - Process sampling -	PROC2		
CS15	General expos	ures (clo	sed systems) + Batch process	PROC3		
CS2	Process sample	ing		PROC3		
CS16	General expos	ures (op	en systems)	PROC4		
C\$36	Laboratory act	ivities		PROC15		
CS14	Bulk transfers			PROC8b		
CS39	Equipment cle	aning an	d maintenance	PROC8a		
CS85	Bulk product s	torage		PROC1, PROC2		
Processes, tasks, activities covered Manu conta storag vessel Indus			nufacture of the substance or use as a process chemical or extraction agent within closed or tained systems. Includes incidental exposures during recycling/ recovery, material transfers, age, sampling, associated laboratory activities, maintenance and loading (including marine sel/barge, road/rail car and bulk container). ustrial use			
Assessment method		See Se	ection 3.			
1.2. Conditions of use affe	cting expos	ure				
1.2.1. Control of environmental ex	kposure: Gene	ral mea	sures (skin irritants) (ERC1, ESVOC S	PERC 1.1.v1)		
ERC1 Mar	nufacture of the s	ubstance	e			
ESVOC SPERC 1.1.v1 Mar	nufacture of subst	tances: li	ndustrial (SU8, SU9)			
Product (article) characteristics						
Physical form of product			Solid at STP, liquid at elevated operating to	emperature, vapour pressure < 0.5 kPa		
Concentration of substance in product			<= 100 %			
Concentration of substance in product			(unless otherwise stated)			
Vapour pressure			vapour pressure < 0.5 kPa at STP			
Amount used, frequency and duration	on of use (or from	n service	life)			
Fraction of EU tonnage used in region	:		3693365,731 t/yr			
Covers daily exposures up to 8 hours differently)	(unless stated					
Conditions and measures related to	personal protecti	on, hygi	ene and health evaluation			
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop						
1.2.2. Control of worker exposure	: General expo	osures ((closed systems) (PROC1)			
PROC1 Use	e in closed proc	ess, no	likelihood of exposure (no sampling)			
Amount used (or contained in articles), frequency and duration of use/exposure						
Covers exposure up to (hours/event):	Covers exposure up to (hours/event): >4 h/day					
Conditions and measures related to	personal protecti	on, hygi	ene and health evaluation			
Handle substance within a closed syst	.em	. ,5				
No other specific measures identified						
Other conditions affecting workers exposure						
Outdoor						
Assumes activities are at ambient temperature (unless stated differently)						

EC-No.: 231-722-6	CAS-No.: 7	704-34-9		REACH registration No: 01-2119487295-27			
1.2.3. Control of worker expo	osure: General exposures	(closed systems) - I	Process sampling -	Outdoor (PROC2)			
PROC2	Use in closed, continuous	process with occasio	onal controlled expos	ure (with sampling)			
Amount used (or contained in a	Amount used (or contained in articles), frequency and duration of use/exposure						
Covers exposure up to (hours/e	vent):	> 4 h/day					
Conditions and measures relate	ed to personal protection, hyg	iene and health evalua	ation				
Without LEV	1 1 7 70						
Handle substance within a close	ed system						
Sample via a closed loop or othe	er system to avoid exposure						
Wear chemically resistant glove	s (tested to EN374) in combina	ation with 'basic' emplo	ууее				
training.	-						
Other conditions affecting wor	kers exposure						
Outdoor							
Assumes activities are at ambie	nt temperature (unless stated	differently)					
1.2.4. Control of worker expo	osure: General exposures	(closed systems) +	Batch process (PR	DC3)			
PROC3	Use in closed batch proce	ess (synthesis or form	ulation) (with samplir	ng)			
Amount used (or contained in a	articles), frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	vent):	>4 h/day					
Conditions and measures relate	ed to personal protection, hyg	iene and health evalua	ation				
Provide extract ventilation to pe	oints where emissions occur						
Without LEV							
Handle substance within a close	ed system						
Wear chemically resistant glove training.	s (tested to EN374) in combina	ation with 'basic' emplo	oyee				
Other conditions affecting wor	kers exposure						
Assumes activities are at ambie	nt temperature (unless stated	differently)					
Indoor							
Outdoor							
Provide closed or ventilated san	nple points.						
1.2.5. Control of worker expo	osure: Process sampling (PROC3)					
PROC3	Use in closed batch proce	ess (synthesis or form	ulation) (with samplir	ng)			
Amount used (or contained in a	articles), frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	vent):	>4 h/day					
Conditions and measures relate	ed to personal protection, hyg	iene and health evalua	ation				
Without LEV	1 1 7 70						
Ensure material transfers are ur	nder containment or extract ve	ntilation					
Wear chemically resistant glove	s (tested to EN374) in combina	ation with 'basic' emplo	oyee				
Other conditions affecting wor	kers exposure						
Assumes activities are at ambie	nt temperature (unless stated	differently)					
Outdoor							
1.2.6. Control of worker exposure: General exposures (open systems) (PROC4)							
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises							
Amount used (or contained in articles) frequency and duration of use/exposure							
Covers use up to (times/day of u	use):	> 4 h/day					
Conditions and measures relate	ed to personal protection, hyg	iene and health evalua	ation				
With LEV							
Ensure operation is undertaken	outdoors. , or: Provide a good	standard of general ve	entilation (not				
Wear chemically resistant glove	s (tested to EN374) in combina	ation with 'basic' emplo	yee				
Other conditions affecting wor	kers exposure						
Assumes activities are at ambie	nt temperature (unless stated	differently)					
Indoor							

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Outdoor							
Transfer via enclosed lines	Transfer via enclosed lines						
1.2.7. Control of worker exp	osure: Laboratory activitie	s (PROC15)					
PROC15	Use as laboratory reagent						
Amount used (or contained in	articles), frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	event):	>4 h/day					
Conditions and measures relat	ed to personal protection, hyg	ene and health evaluation					
Without LEV	, , , , , , , , , , , , , , , , , , , ,						
Handle within a fume cupboard	d or implement suitable equival	ent methods to minimise					
exposure.							
Wear chemically resistant glove	tested to EN374).	standard gaparally at least over 14					
months	testeu against its performance	stanuaru - generaliy at least every 14					
Other conditions affecting wo	rkers exposure						
Indoor							
Assumes use at not more than	20°C above ambient temperatu	re, unless stated differently					
1.2.8. Control of worker exp	osure: Bulk transfers (PRC	0C8b)					
PROC8b	Transfer of substance or p	reparation (charging/discharging) from/to	vessels/large containers at dedicated facilities				
Amount used (or contained in	articles), frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	event):	> 4 h/day					
Conditions and measures relat	red to personal protection byg	ene and health evaluation					
Without LEV							
Ensure material transfers are u	nder containment or extract ve	ntilation					
Ensure operation is undertaker	ı outdoors						
Clear transfer lines prior to de-	coupling						
Avoid splashing							
Wear chemically resistant glove	es (tested to EN374) in combina	tion with 'basic' employee					
training.							
Outdoor	kers exposure						
Assumes use at not more than	20°C above ambient temperatu	re unless stated differently					
PROC82	Transfer of substance or r	and maintenance (PROC8a)	vessels/large containers at non dedicated				
110000	facilities		vessels/large containers at non dedicated				
Amount used (or contained in	articles) frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	event):	> 4 h/day					
Conditions and measures relat	red to personal protection, byg	ione and health evaluation					
Without LEV	ed to personal protection, hyg		r				
Drain down and flush system n	rior to equipment break-in or n	naintenance Retain drain downs in					
sealed storage pending disposa	sealed storage pending disposal or for subsequent recycle						
Retain drain downs in sealed storage pending disposal or for subsequent recycle							
Deal with spills immediately							
wear chemically resistant gloves (tested to EN374) in combination with specific activity training.							
Other conditions affecting workers exposure							
Assumes activities are at ambient temperature (unless stated differently)							
Indoor							
Outdoor							
Transfer via enclosed lines							
1.2.10. Control of worker ex	posure: Bulk product stora	ge (PROC1, PROC2)					
PROC1	Use in closed process, no like	lihood of exposure (no sampling)					
PROC2	Use in closed, continuous pro	ocess with occasional controlled exposure (wi	ith sampling)				
Amount used (or contained in	articles), frequency and durati	on of use/exposure					
Covers exposure up to (hours/e	event):	> 4 h/day					

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Conditions and measures related t	o personal protection, hygiene and h	ealth evaluation						
Store substance within a closed sys	tem							
Ensure dedicated sample points are provided								
Ensure operation is undertaken outdoors., or: Provide a good standard of general ventilation (not								
less than 3 to 5 air changes per hour) Avoid din sampling								
Wear chemically resistant gloves (to	ested to EN374) in combination with 'b	pasic' employee						
training.								
Other conditions affecting workers	s exposure							
Outdoor								
Assumes activities are at ambient t	emperature (unless stated differently)							
1.3. Exposure estimation	and reference to its source	e						
1.2.1 Environmental release an	d ovposuro Coporal moasuros (s	kin irritanta) (EPC1_ESVO		v1)				
Information for contributing expo	sure scenario		C SPERC 1.1	.v1)				
No additional information								
1 3 2 Worker exposure General exp	osures (closed systems) (PROC1)							
Route of exposure and type of	Exposure estimate	BCB		Method				
effects				incuiou				
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0		Qualitative approach used to				
Inhalation - Long-term -	0,01 mg/m³	0,003		Used ECETOC TRA model.				
Sum RCR - Long-term -		0,003						
1.3.3. Worker exposure General exp	oosures (closed systems) - Process sam	pling - Outdoor (PROC2)		I				
Route of exposure and type of	Exposure estimate	RCR		Method				
effects								
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0		Qualitative approach used to				
effects Inhalation - Long-term -	0.5 mg/m ³	0.125		conclude safe use Used ECETOC TRA model.				
systemic effects		0,220						
Sum RCR - Long-term -		0,125						
1.3.4. Worker exposure General exp	oosures (closed systems) + Batch proce	ess (PROC3)						
Route of exposure and type of	Exposure estimate	RCR		Method				
effects								
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0		Qualitative approach used to conclude safe use				
Inhalation - Long-term -	1 mg/m ³	0,25		Used ECETOC TRA model.				
Sum RCR - Long-term -		0,25						
systemic effects								
1.3.5. Worker exposure Process sam		DCD		Mathod				
effects	Exposure estimate	KCK		Method				
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0		Qualitative approach used to conclude safe use				
Inhalation - Long-term -	1 mg/m ³	0,25		Used ECETOC TRA model.				
Sum RCR - Long-term -		0,25						
systemic effects	osures (open systems) (PROC4)							
Boute of exposure and type of	Exposure estimate	RCR		Method				
effects								
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0		Qualitative approach used to conclude safe use				
Inhalation - Long-term - systemic effects	3,5 mg/m³	0,875		Used ECETOC TRA model.				
Sum RCR - Long-term -		0,875						
1.3.7. Worker exposure Laboratory	activities (PROC15)							
Route of exposure and type of	Exposure estimate	RCR		Method				
effects								
Dermal - Long-term - systemic	0 mg/kg hodyweight/day			Qualitative annroach used to				

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effects			conclude safe use			
Inhalation - Long-term - systemic effects	0,5 mg/m ³	0,125	Used ECETOC TRA model.			
Sum RCR - Long-term - systemic effects		0,125				
1.3.8. Worker exposure Bulk transfe	ers (PROC8b)					
Route of exposure and type of effects	Exposure estimate	RCR	Method			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use			
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.			
Sum RCR - Long-term - systemic effects		0,875				
1.3.9. Worker exposure Equipment	cleaning and maintenance (PROC8a)					
Route of exposure and type of effects	Exposure estimate	RCR	Method			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use			
Inhalation - Long-term - systemic effects	1 mg/m³	0,25	Used ECETOC TRA model.			
Sum RCR - Long-term - systemic effects		0,25				
1.3.10. Worker exposure Bulk prod	uct storage (PROC1, PROC2)					
Route of exposure and type of effects	Exposure estimate	RCR	Method			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use			
Inhalation - Long-term - systemic effects	0,5 mg/m³	0,125	Used ECETOC TRA model.			
Sum RCR - Long-term - systemic effects		0,125				
1.4. Guidance to Downstrea	m User (DU) to evaluate whet	her he works inside the	e boundaries set by the ES			
1.4.1. Environment						
Guidance - Environment	No exposure assessment	No exposure assessment presented for the environment				
1.4.2. Health						
Guidance - Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to a least equivalent levels.						

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2.02: Distribution of substance

2.1. Title section

2. Distribution of substance - industrial

Association ref code: CONC.2.LU.1A			
Environment			
GEN-04	General measu	res (skin irritants)	ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 1.1b.v1
Worker			
CS15	General exposu	ires (closed systems)	PROC1
CS15	General exposu Outdoor	res (closed systems) - Process sampling -	PROC2
CS15	General exposu	res (closed systems) + Batch process	PROC3
CS2	Process samplin	ng	PROC3
CS16	General exposu	ires (open systems)	PROC4
CS36	Laboratory acti	vities	PROC15
CS14	Bulk transfers		PROC8b
CS7	Small package f	filling	PROC9
CS39	Equipment clea	ning and maintenance	PROC8a
CS85	Bulk product st	orage	PROC1, PROC2
Processes, tasks, activities covered		Bulk loading (including marine vessel/barge, rail/ drums and small packs) of substance, including its laboratory activities. Excludes emissions during tr Industrial use	road car and IBC loading) and repacking (including s sampling, storage, unloading, and associated ransport.

2.2. Conditions of use affecting exposure

2.2.1. Control of environmental exposure: General measures (skin irritants) (ERC4, ERC5, ERC6a, ERC6b, ERC6c, ERC6d, ERC7, ESVOC SPERC 1.1b.v1)

The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
ERC5	Use at industrial site leading to inclusion into/onto article
ERC6a	Use of intermediate
ERC6b	Use of reactive processing aid at industrial site (no inclusion into or onto article)
ERC6c	Use of monomer in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC6d	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
ERC7	Use of functional fluid at industrial site
ESVOC SPERC 1.1b.v1	Distribution: Industrial (SU3)

Product (article) characteristics

Assessment method

Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa
Concentration of substance in product	<= 100 %
concentration of substance in product	
Concentration of substance in product	(upless otherwise stated)
concentration of substance in product	(unless otherwise stated)
Vanour pressure	Liquid vanour pressure 0.5 - 10 kPa at STP
vapour pressure	

Amount used, frequency and duration of use (or from service life)				
Fraction of EU tonnage used in r	region:	4074527,906 t/yr		
Covers daily exposures up to 8 h	ours (unless stated			
differently)				
Conditions and measures related to personal protection, hygiene and health evaluation				
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.				
2.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)				
PROC1	Use in closed process, no likelihood of exposure (no sampling)			

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Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (h	ours/event):	> 4 h/day	
Conditions and measure	s related to personal protection, hyg	iene and health evaluation	
Handle substance within	a closed system		
Use in closed process, no	likelihood of exposure		
Other conditions affectir	ig workers exposure		
Outdoor	· ·		
Assumes activities are at	ambient temperature (unless stated	differently)	
2.2.3. Control of worke	r exposure: General exposures	(closed systems) - Process sampling	- Outdoor (PROC2)
PROC2	Use in closed, continuous	process with occasional controlled expos	sure (with sampling)
Amount used (or contain	and in articles) frequency and durati		(1 0)
	ours/ovent):		
Covers exposure up to (II		> 4 11/uay	
Conditions and measure	s related to personal protection, hyg	iene and health evaluation	1
Without LEV			
Handle substance within	a closed system. Sample via a closed	loop or other system to avoid	
Wear chemically resistan	t gloves (tested to EN374) in combina	tion with 'basic' employee	
training.			
Other conditions affectir	ig workers exposure		
Outdoor			
Assumes activities are at	ambient temperature (unless stated	differently)	
2.2.4. Control of worke	r exposure: General exposures	(closed systems) + Batch process (PR	:OC3)
PROC3	Use in closed batch proce	ss (synthesis or formulation) (with sampli	ing)
Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (h	ours/event):	> 4 h/day	
Conditions and measure	s related to personal protection, hyg	iene and health evaluation	
Without LEV			
Provide closed or ventilat	ted sample points.		
Wear chemically resistan	t gloves (tested to EN374) in combina	tion with 'basic' employee	
training.			
Other conditions affectir	ig workers exposure		
Outdoor			
Assumes activities are at	ambient temperature (unless stated	differently)	
2.2.5. Control of worke	r exposure: Process sampling (PROC3)	
PROC3	Use in closed batch proce	ss (synthesis or formulation) (with sampli	ing)
Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (h	ours/event):	> 4 h/day	
Conditions and measure	s related to personal protection, hyg	iene and health evaluation	
Without LEV			
Provide closed or ventilat	ted sample points.		
Ensure material transfers	are under containment or extract ve	ntilation	
Wear chemically resistant	t gloves (tested to EN374) in combina	tion with 'basic' employee	
training.			
Other conditions affectir	ig workers exposure		
Outdoor			
Assumes activities are at	ambient temperature (unless stated	aitterently)	
2.2.6. Control of worke	r exposure: General exposures	(open systems) (PROC4)	
PROC4	Use in batch and other pro	ocess (synthesis) where opportunity for e	xposure arises
Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (h	ours/event):	> 4 h/day	
Conditions and measure	s related to personal protection, hyg	iene and health evaluation	
Without LEV			

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Provide extract ventilation to material transfer points and other openings	
Ensure operation is undertaken outdoors. , or: Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
Other conditions affecting workers exposure	
Indoor/Outdoor use.	
Assumes activities are at ambient temperature (unless stated differently)	
2.2.7. Control of worker exposure: Laboratory activities (PROC15)	
PROC15 Use as laboratory reagent	
Amount used (or contained in articles), frequency and duration of use/exposure	
Covers exposure up to (hours/event): >4 h/day	
Conditions and measures related to personal protection, bygiene and health evaluation	
Handle within a fume curboard or implement suitable equivalent methods to minimise	
exposure.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
Other conditions affecting workers exposure	
Indoor	
Assumes activities are at ambient temperature (unless stated differently)	
2.2.8. Control of worker exposure: Bulk transfers (PROC8b)	
PROC8b Transfer of substance or preparation (charging/discharging) from/to ve	essels/large containers at dedicated facilities
Amount used (or contained in articles), frequency and duration of use/exposure	
Covers exposure up to (hours/event): >4 h/day	
Conditions and measures related to personal protection, bygiene and health evaluation	
Without LEV	
Ensure material transfers are under containment or extract ventilation. Clear lines prior to de-	
coupling.	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.	
Other conditions affecting workers exposure	
Outdoor	
Assumes activities are at ambient temperature (unless stated differently)	
2.2.9. Control of worker exposure: Small package filling (PROC9)	
PROC9 Transfer of substance or preparation into small containers (dedicated	filling line, including weighing)
Amount used (or contained in articles), frequency and duration of use/exposure	
Covers exposure up to (hours/event): >4 h/day	
Continuous process	
Conditions and measures related to personal protection, hypiene and health evaluation	
Without IEV	
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)	
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee	
training.	
Other conditions affecting workers exposure	
Assumes activities are at ambient temperature (unless stated differently)	
2.2.10. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)	
PROC8a Transfer of substance or preparation (charging/discharging) from/to ve facilities	essels/large containers at non dedicated
Amount used (or contained in articles), frequency and duration of use/exposure	
Covers exposure up to (hours/event): >4 h/day	
Conditions and measures related to personal protection, hygiene and health evaluation	
Without LEV	

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Drain down system prior to equipment break-in or maintenance				
Retain drain downs in sealed sto	rage pending disposal or for s			
Wear chemically resistant gloves training.	s (tested to EN374) in combina	ation with specific activity		
Other conditions affecting work	kers exposure			
Indoor/Outdoor use.				
Assumes activities are at ambier	nt temperature (unless stated	differently)		
2.2.11. Control of worker exp	osure: Bulk product stora	age (PROC1, PROC2)		
PROC1	Use in closed process, no like	elihood of exposure (no sampling)		
PROC2	Use in closed, continuous pr	ocess with occasional controlled exposur	e (with sampling)	
Amount used (or contained in a	rticles), frequency and durat	ion of use/exposure		
Covers exposure up to (hours/ev	vent):	>4 h/day		
Conditions and measures relate	d to personal protection, hyg	iene and health evaluation		
Ensure dedicated sample points	are provided			
Wear chemically resistant gloves	s (tested to EN374) in combina	ation with 'basic' employee		
training. Ensure operation is undertaken	outdoors. , or: Provide a good	standard of general ventilation (not		
Other conditions affecting work	kers exposure			
Outdoor				
Assumes activities are at ambier	nt temperature (unless stated	differently)		
2.3 Exposure estimation	on and reference to i	ts source	I	
2.3.1. Environmental release SPERC 1.1b.v1)	and exposure General me	easures (skin irritants) (ERC4, ERC	5, ERC6a, ERC	6b, ERC6c, ERC6d, ERC7, ESVOC
Information for contributing ex	posure scenario			
No additional information.				
2.3.2. Worker exposure General e	exposures (closed systems) (P	ROC1)		
Route of exposure and type of effects	Exposure estimate	RCR		Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/da	ау О		Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,01 mg/m ³	0,003		Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,003		
2.3.3. Worker exposure General e	exposures (closed systems) - I	Process sampling - Outdoor (PROC2)		
Route of exposure and type of effects	Exposure estimate	RCR		Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/da	ау О		Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,5 mg/m ³	0,125		Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,125		
2.3.4. Worker exposure General of	exposures (closed systems) +	Batch process (PROC3)		
Route of exposure and type of effects	Exposure estimate	RCR		Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/da	ау О		Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m³	0,25		Used ECETOC TRA model.
Sum RCR - Long-term - 0,25				
2.3.5. Worker exposure Process s	ampling (PROC3)			
Route of exposure and type of effects	Exposure estimate	RCR		Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/da	ау О		Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25		Used ECETOC TRA model.
Sum RCR - Long-term -		0,25		

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systemic effects			
2.3.6. Worker exposure General exp	oosures (open systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
2.3.7. Worker exposure Laboratory	activities (PROC15)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,5 mg/m ³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,125	
2.3.8. Worker exposure Bulk transfe	ers (PROC8b)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
2.3.9. Worker exposure Small packa	ige filling (PROC9)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
2.3.10. Worker exposure Equipmen	t cleaning and maintenance (PRO)C8a)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,25	
2.3.11. Worker exposure Bulk produ	uct storage (PROC1, PROC2)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,35 mg/m ³	0,088	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects	- 0,088		
2.4. Guidance to Downstrea	m User (DU) to evaluate w	hether he works inside the b	oundaries set by the ES
2.4.1. Environment			
Guidance - Environment INO exposure assessment presented for the environment			nt
2.4.2. Health			
Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.			DNEL for dermal irritant effects. Risk haracterisation. Available hazard data do not ir health effects. Users are advised to consider ent values. Where other Risk Management sers should ensure that risks are managed to at

EXPOSUR SCENARIO SULPHUR

EC-No.: 231-722-6 CAS-No.: 7704-34-9

REACH registration No: 01-2119487295-27

3. 03: Use as an intermediate

3.1. Title section

3. Use as an intermediate - Industrial

Association ref code:	CONC.3.LU.1B
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Environment					
GEN-03	General measures (sl	kin irritants)	ERC6a, ESVOC SPERC 6.1a.v1		
Worker					
CS15	General exposures (c	losed systems)	PROC1		
CS15	General exposures (c Outdoor	losed systems) - Process sampling -	PROC2		
CS15	General exposures (c	losed systems) + Batch process	PROC3		
CS2	Process sampling		PROC3		
CS16	General exposures (o	pen systems)	PROC4		
CS36	Laboratory activities		PROC15		
CS14	Bulk transfers		PROC8b		
CS39	Equipment cleaning a	and maintenance	PROC8a		
CS15	General exposures (c	losed systems)	PROC22		
CS16	General exposures (o	pen systems)	PROC23		
CS85	Bulk product storage		PROC1, PROC2		
Processes, tasks, activities cover	Processes, tasks, activities covered Use of substance as an intermediate within closed or contained s Conditions). Includes incidental exposures during recycling/ reco associated laboratory activities, maintenance and loading (inclu container).		d systems (not related to Strictly Controlled covery, material transfers, storage, sampling, luding marine vessel/barge, road/rail car and bulk		
Assessment method	The ECETOC TRA to	ol has been used to estimate workplace exp	oosures unless otherwise indicated		
	The ConsExpo mod	el has been used to estimate consumer exp	oosures unless otherwise indicated.		
3.2. Conditions of use a	affecting exposure				
3.2.1. Control of environmen	tal exposure: General me	asures (skin irritants) (ERC6a, ESVO	C SPERC 6.1a.v1)		
ERC6a	Use of intermediate	f intermediate			
ESVOC SPERC 6.1a.v1	Manufacture of substance: I	ufacture of substance: Industrial (SU8, SU9)			
Product (article) characteristics					
Physical form of product		Solid at STP, liquid at elevated operating	z temperature vapour pressure < 0.5 kPa		
Concentration of substance in n	roduct	<= 100 %			
Concentration of substance in p	roduct	(unless otherwise stated)			
Vanour pressure		Liquid vapour pressure 0.5 - 10 kPa at STP			
Amount used, frequency and d	uration of use (or from servio	e life)			
Regional use tonnage (tonnes/y Covers daily exposures up to 8 h differently)	ear): nours (unless stated	2885705,07 t/yr			
Conditions and measures related to personal protection, hygiene and health evaluation					
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop.					
3.2.2. Control of worker expo	3.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)				
PROC1 Use in closed process, no likelihood of exposure (no sampling)					
Amount used (or contained in a	articles), frequency and durat	ion of use/exposure			
Covers exposure up to (hours/event): >4 h/day					
Conditions and measures related to personal protection, hygiene and health evaluation					
Handle substance within a close	d system				

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Other conditions affecting world	kers exposure				
Outdoor					
Assumes use at not more than 2	20°C above ambient temperatu	re, unless stated differently			
3.2.3. Control of worker expo	osure: General exposures	(closed systems) - Process sampling -	· Outdoor (PROC2)		
PROC2	Use in closed, continuous	process with occasional controlled expos	sure (with sampling)		
Amount used (or contained in a	articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours/e	vent):	> 4 h/day			
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation			
Without LEV					
Handle substance within a close	ed system. Sample via a closed l	oop or other system to avoid exposure			
Wear chemically resistant glove training.	s (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting worl	kers exposure				
Outdoor					
Assumes activities are at ambien	nt temperature (unless stated o	differently)			
3.2.4. Control of worker expo	osure: General exposures	(closed systems) + Batch process (PR	OC3)		
PROC3	Use in closed batch proces	ss (synthesis or formulation) (with sampli	ng)		
Amount used (or contained in a	articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours/e	vent):	>4 h/day			
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation			
Without LEV					
Ensure dedicated sample points	are provided				
Provide closed or ventilated san	nple points.				
Wear chemically resistant glove	s (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting world	kers exposure				
Outdoor					
Assumes activities are at ambien	nt temperature (unless stated of	lifferently)			
325 Control of worker expo	osure: Process sampling (I	PROC3)			
PROC3	Use in closed batch proces	ss (synthesis or formulation) (with sampli	ng)		
Amount used (or contained in a	articles) frequency and durativ	on of use/exposure	<u>,</u>		
Covers exposure up to (hours/e	vent):	>4 h/day			
Without LEV	ed to personal protection, nygi	ene and health evaluation			
Provide closed or ventilated san	mple points				
Wear chemically resistant glove	(tested to EN374) in combina	tion with 'basic' employee			
training.	- (
Other conditions affecting worl	kers exposure				
Outdoor					
Assumes activities are at ambien	Assumes activities are at ambient temperature (unless stated differently)				
3.2.6. Control of worker exposure: General exposures (open systems) (PROC4)					
PROC4	Use in batch and other pro	cess (synthesis) where opportunity for ex	xposure arises		
Amount used (or contained in a	articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours/e	vent):	> 4 h/day			
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation			
Without LEV					
Ensure operation is undertaken	Ensure operation is undertaken outdoors., or: Provide a good standard of general ventilation (not				
less than 3 to 5 air changes per Wear chemically resistant glove	<u>hour)</u> s (tested to EN374) in combina	tion with 'basic' employee			
Other conditions offecting work	kers exposure		<u> </u>		
Indoor/Outdoor use	Reis exposule				
			<u> </u>		

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Assumes activities are at ambient temperature (unless stated differently)			
3.2.7. Control of worker exp	osure: Laboratory activitie	s (PROC15)	-
PROC15	Use as laboratory reagent		
Amount used (or contained in		on of use lovnesure	
	articles), frequency and duration		
covers exposure up to (nours) e	vent).		
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation	
Without LEV			
Handle within a fume cupboard	or implement suitable equivale	ent methods to minimise	
Wear chemically resistant glove training.	s (tested to EN374) in combina	tion with 'basic' employee	
Other conditions affecting wor	kers exposure		
Indoor			[
Assumes activities are at ambie	nt temperature (unless stated	differently)	
328 Control of worker exp	osure: Bulk transfers (PRC	0C8b)	
PROC8b	Transfer of substance or p	reparation (charging/discharging) from/to	vessels/large containers at dedicated facilities
Amount used (or contained in a	articles), frequency and duration	on of use/exposure	
Covers exposure up to (nours/e	vent):	> 4 11/Udy	
Conditions and measures relate	ed to personal protection, hygi	iene and health evaluation	
Without LEV			
Ensure material transfers are un	nder containment or extract ve	ntilation. Clear lines prior to de-	
Ensure operation is undertaken	outdoors		
Wear chemically resistant glove	es (tested to EN374) in combina	tion with 'basic' employee training.	
Other conditions affecting wor	kers exposure		
Outdoor			
Assumes activities are at ambie	nt temperature (unless stated	differently)	
3.2.9. Control of worker exp	osure: Equipment cleaning	and maintenance (PROC8a)	
PROC8a	Transfer of substance or p facilities	reparation (charging/discharging) from/to	vessels/large containers at non dedicated
Amount used (or contained in a	articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours/e	vent):	> 4 h/day	
Conditions and massures relat	ad to never al evotestion, but	inter and health evolution	
Without LEV	ed to personal protection, nygi		
Drain down system prior to ogu	unment break in or maintenan	co. Potain drain downs in soalod, storago	
pending disposal or for subseque Wear chemically resistant glove training.	ient recycle (tested to EN374) in combina	tion with specific activity	
Other conditions affecting wor	kers exposure		
Indoor/Outdoor use.			
Assumes activities are at ambie	nt temperature (unless stated	differently)	
3.2.10. Control of worker ex	oosure: General exposures	s (closed systems) (PROC22)	
PROC22	Potentially closed process	ing operations with minerals/metals at ele	evated temperature - Industrial setting
Amount used (or contained in a	articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours/e	event):	>4 h/day	
Conditions and measures relate	ed to personal protection, hvg	ene and health evaluation	
Without LEV			
Handle substance within a close	ed system		
Other conditions offecting war			
	ners exposure		
Assumes activities are at ambio	nt temperature (unless stated	differently)	
2.0.44. Operated of a latitude			
3.2.11. Control of worker exp	Doop processing and the	s (open systems) (PROC23)	
PRUCZ3	pen processing and trans	sier operations with minerals/metals at el	evaled lemperature

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Amount used (or contained in a	Amount used (or contained in articles), frequency and duration of use/exposure				
Covers exposure up to (hours/e	vent):	> 4 h/day			
Conditions and measures relate	ed to personal prote	ction, hygiene and health	evaluation		
Wear chemically resistant glove	s (tested to EN374) i	n combination with specifi	c activity		
training. Without LEV					
Ensure material transfers are up	nder containment or	extract ventilation			
Other conditions offecting wer	kare evreeure				
Uther conditions affecting wor	kers exposure				
Assumes activities are at ambie	nt temperature (unle	ess stated differently)			
2.0.40. Control of worker ov	Bully meed	lust stated americanity			
PROC1	Use in closed proce	ess no likelihood of exposi	re (no sampling)		
PROC2	Use in closed, cont	inuous process with occasi	ional controlled exposure (wit	h sampling)	
Amount used (or contained in	articles) frequency	and duration of use /expos			
	vent):		uie		
		> 4 11/ Udy			
	ed to personal prote	ction, hygiene and health	evaluation		
Without LEV	autoara ar Dravi	ide a good standard of goo	aral vantilation (not loss		
than 3 to 5 air changes per hour	r)	de a good standard of gen	eral ventilation (not less		
Ensure dedicated sample points	are provided. Store	substance within a closed	system		
Wear chemically resistant glove	s (tested to EN374) i	n combination with 'basic'	employee training.		
Other conditions affecting wor	kers exposure				
Outdoor					
Assumes activities are at amble	nt temperature (unio	ess stated differently)			
3.3. Exposure estimati	on and referer	nce to its source			
3.3.1. Environmental release	and exposure Ge	eneral measures (skin i	rritants) (ERC6a, ESVOC	SPERC 6.1a.v1)	
Information for contributing ex	oposure scenario				
No additional information.					
3.3.2. Worker exposure General	exposures (closed sy	ystems) (PROC1)			
Route of exposure and type of	effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic	effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - system effects	nic	0,01 mg/m³	0,003	Used ECETOC TRA model.	
Sum RCR - Long-term - systemi	c effects		0,003		
3.3.3. Worker exposure General	exposures (closed sy	ystems) - Process sampling	- Outdoor (PROC2)		
Route of exposure and type of	effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic	effects	0 mg/kg bodyweight/day	0	Qualitative approach used to	
Inhalation - Long-term - system	nic	0,5 mg/m³	0,125	Used ECETOC TRA model.	
Sum RCR - Long-term - systemi	c effects		0,125		
3.3.4. Worker exposure General	exposures (closed sy	ystems) + Batch process (P	ROC3)	1	
Route of exposure and type of	effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic	effects	0 mg/kg bodyweight/day	0	Qualitative approach used to	
Inhalation - Long-term - system	nic	1 mg/m³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemi	c effects		0,25		
3.3.5. Worker exposure Process	sampling (PROC3)				
Route of exposure and type of	effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic		0 mg/kg bodyweight/day	0	Qualitative approach used to	
effects				conclude safe use	
Inhalation - Long-term - system	nic effects	1 mg/m ³	0,25	Used ECETOC TRA model.	

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Sum RCR - Long-term - systemic effects		0,25	
3.3.6. Worker exposure General exposures (ope	n systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
3.3.7. Worker exposure Laboratory activities (PF	ROC15)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,5 mg/m ³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,125	
3.3.8. Worker exposure Bulk transfers (PROC8b)			
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
3.3.9. Worker exposure Equipment cleaning and	l maintenance (PROC8a)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,25	
3.3.10. Worker exposure General exposures (clo	osed systems) (PROC22)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Inhalation - Long-term - systemic effects	3 mg/m ³	0,75	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,75	
3.3.11. Worker exposure General exposures (op	en systems) (PROC23)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Inhalation - Long-term - systemic effects	3 mg/m ³	0,75	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,75	
	55001 55002)	•	

3.3.12. Worker exposure Bulk product storage (PROC1, PROC2)

Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg	0	Qualitative approach used to	
	bodyweight/day		conclude safe use	
Inhalation - Long-term - systemic effects	0,35 mg/m ³	0,088	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,088		
3.4. Guidance to Downstream User (DU) to evaluate whether he works inside the boundaries set by the ES				

3.4.1. Environment

Guidance - Environment

No exposure assessment presented for the environment

3.4.2. Health

Guidance - Health	Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
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EXPOSUR SCENARIO SULPHUR

EC-No.: 231-722-6 CAS-No.: 7704-34-9

REACH registration No: 01-2119487295-27

4. 04: Formulation & (re)packing of substances and mixtures

4.1. Title section

4. Formulation & (re)packing of substances and mixtures - industrial

Environmont								
	Conorol management (-) (a invitanta)						
GEN-04	General measures (skii	n Irritants)	ERC2, ESVOC SPERC 2.2.VI					
worker			22001					
CS15	General exposures (clo	(sed systems)	PROC1					
CS15	General exposures (clo Outdoor	sed systems) - Process sampling -	PROC2					
CS15	General exposures (clo	sed systems) + Batch process	PROC3					
CS2	Process sampling		PROC3					
CS16	General exposures (op	en systems)	PROC4					
CS30	Mixing operations (ope	en systems)	PROC5					
CS512	Milling, grinding and si	milar activities.	PROC24					
CS7	Small package filling		PROC9					
CS53	Production or preparation compression, extrusion	tion or articles by tabletting, n or pelletisation	PROC14					
CS36	Laboratory activities		PROC15					
CS14	Bulk transfers		PROC8b					
CS39	Equipment cleaning an	id maintenance	PROC8a					
CS16	General exposures (op	en systems)	PROC23					
CS85	Bulk product storage		PROC1, PROC2					
Assessment method	systems, inclue and associated Industrial use The ECETOC TF	ding incidental exposures during storage, ma l laboratory activities RA tool has been used to estimate workplace	terials transfers, mixing, maintenance, sampling e exposures unless otherwise indicated					
4.2 Conditions of use affe	cting exposure							
4.2.1 Control of environmental ex	xposure: General mea	sures (skin irritants) (ERC2_ESVOC S	PERC 2.2 v1)					
ERC2 Forr	nulation of preparations		,					
ESVOC SPERC 2.2.v1 Forr	nulation & (re)packing of	substances and mixtures: Industrial (SU10)						
Product (article) characteristics			Product (article) characteristics					
Physical form of product	Physical form of product Solid at STP. liquid at elevated operating temperature, vapour pressure < 0.5 kPa							
Concentration of substance in product		Solid at STP, liquid at elevated operating to	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in produc	t	<pre><= 100 %</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in produce	t t	<pre>< 100 % (unless otherwise stated)</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in produce Concentration of substance in produce Vapour pressure	t t	 Solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP 	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duration	t t on of use (or from service	Solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life)	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duration Fraction of EU tonnage used in region	t t on of use (or from service 1:	Solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duration Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently)	t t on of use (or from service 1: (unless stated	<pre>solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duratic Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently) Conditions and measures related to p	t t on of use (or from service n: (unless stated personal protection, hygi	<pre>solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr ene and health evaluation</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duratic Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently) Conditions and measures related to p Avoid direct skin contact with product (tested to EN374) if hand contact with occur. Wash off any skin contamination minimise exposures and to report any	t t on of use (or from service t: (unless stated personal protection, hygi t. Identify potential areas h substance likely. Clean u on immediately. Provide b v skin problems that may	<pre>solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr ene and health evaluation for indirect skin contact. Wear gloves up contamination/spills as soon as they pasic employee training to prevent / develop.</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duratic Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently) Conditions and measures related to p Avoid direct skin contact with product (tested to EN374) if hand contact with occur. Wash off any skin contamination minimise exposures and to report any 4.2.2. Control of worker exposure	t t t on of use (or from service t: (unless stated personal protection, hygi t. Identify potential areas h substance likely. Clean u on immediately. Provide b v skin problems that may c: General exposures (<pre>solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr ene and health evaluation for indirect skin contact. Wear gloves up contamination/spills as soon as they pasic employee training to prevent / develop. (closed systems) (PROC1)</pre>	General measures (skin irritants)					
Concentration of substance in product Concentration of substance in product Vapour pressure Amount used, frequency and duration Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently) Conditions and measures related to product (tested to EN374) if hand contact with occur. Wash off any skin contamination minimise exposures and to report any 4.2.2. Control of worker exposures PROC1 Use	t t t on of use (or from service t: (unless stated personal protection, hygi t. Identify potential areas h substance likely. Clean u on immediately. Provide to y skin problems that may e: General exposures (e in closed process, no	<pre>solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr ene and health evaluation for indirect skin contact. Wear gloves up contamination/spills as soon as they pasic employee training to prevent / develop. (closed systems) (PROC1) likelihood of exposure (no sampling)</pre>	emperature, vapour pressure < 0.5 kPa					
Concentration of substance in produce Concentration of substance in produce Vapour pressure Amount used, frequency and duratice Fraction of EU tonnage used in region Covers daily exposures up to 8 hours differently) Conditions and measures related to produce (tested to EN374) if hand contact with occur. Wash off any skin contamination minimise exposures and to report any 4.2.2. Control of worker exposure PROC1 Use Amount used (or contained in article	t t t on of use (or from service i: (unless stated personal protection, hygi t. Identify potential areas h substance likely. Clean u on immediately. Provide b v skin problems that may s: General exposures (e in closed process, no es), frequency and duration	Solid at STP, liquid at elevated operating to <= 100 % (unless otherwise stated) Liquid, vapour pressure 0.5 - 10 kPa at STP life) 1188822,836 t/yr ene and health evaluation for indirect skin contact. Wear gloves up contamination/spills as soon as they basic employee training to prevent / develop. (closed systems) (PROC1) likelihood of exposure (no sampling) on of use/exposure	General measures (skin irritants)					

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Conditions and measur	es related to personal pro	tection, hyg	iene and health evaluation	
Handle substance withi	n a closed system			
Use in closed process, r	o likelihood of exposure			
Other conditions affect	ing workers exposure			
Outdoor	•			
Assumes activities are a	at ambient temperature (u	nless stated	differently)	
4.2.3. Control of work	er exposure: General	exposures	(closed systems) - Process sampling -	Outdoor (PROC2)
PROC2	Use in closed,	continuous	process with occasional controlled expos	sure (with sampling)
Amount used (or conta	ined in articles), frequend	y and durati	on of use/exposure	
Covers exposure up to	(hours/event):	-	>4 h/day	
Conditions and measur	es related to personal pro	tection. hvg	iene and health evaluation	
Without LEV	·····			
Handle substance withi	n a closed system. Sample	via a closed	loop or other system to avoid exposure	
Wear chemically resista	nt gloves (tested to EN374	l) in combina	ation with 'basic' employee	
Other conditions affect	ing workers exposure			
Outdoor				
Assumes activities are a	at ambient temperature (u	nless stated	differently)	
4.2.4. Control of work	er exposure: General	exposures	(closed systems) + Batch process (PR	OC3)
PROC3	Use in closed	batch proce	ess (synthesis or formulation) (with sampli	ng)
Amount used (or cents	inod in articles) frequence	wand durati		<u>,</u>
	hours/event):	y and durati	> 4 b/day	
Conditions and measur	es related to personal pro	otection, hyg	iene and health evaluation	
Without LEV	atad cample points			
Wear chemically resista	ated sample points.	I) in combine	tion with (basis' amployee	
training.	int gloves (lested to EN37-		ation with basic employee	
Other conditions affect	ing workers exposure			
Outdoor				
Assumes activities are a	at ambient temperature (u	nless stated	differently)	
4.2.5. Control of work	er exposure: Process	sampling (PROC3)	
PROC3	Use in closed	batch proce	ess (synthesis or formulation) (with sampli	ng)
Amount used (or conta	ined in articles), frequenc	y and durati	ion of use/exposure	
Covers exposure up to	(hours/event):	•	> 4 h/day	
Conditions and measur	es related to nersonal nro	tection byg	iene and health evaluation	
Without LEV				
Provide closed or ventil	ated sample points.			
Ensure material transfe	rs are under containment	or extract ve	entilation	
Wear chemically resista	nt gloves (tested to EN374	l) in combina	ation with 'basic' employee	
Other conditions affect	ing workers exposure			
Outdoor				
Assumes activities are at ambient temperature (unless stated differently)				
4.2.6. Control of work	er exposure: General	exposures	(open systems) (PROC4)	
PROC4	Use in batch a	nd other pro	ocess (synthesis) where opportunity for ex	kposure arises
Amount used (or conta	ined in articles), frequenc	y and durati	ion of use/exposure	
Covers exposure up to	(hours/event):		>4 h/day	
Conditions and measure	es related to personal pro	tection hvg	iene and health evaluation	
Without LEV	to personal pro			
Provide extract ventilat	ion to material transfer po	oints and oth	er openings	
Ensure operation is und	lertaken outdoors. , or: Pr	ovide a good	standard of general ventilation (not	
less than 3 to 5 air char	iges per hour)		5	

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Other conditions affectin	g workers expessive			
Indeer/Outdoor use	g workers exposure			
Assumes activities are at a	amhient temnerature (unless stated	differently)		
4.2.7. Control of worker	Mixing or blonding in bot	(open systems) (PROC5)	ione and articles (multistage and/or significant	
PROCS	contact)			
Amount used (or contain	ed in articles), frequency and durat	tion of use/exposure		
Covers exposure up to (ho	ours/event):	>4 h/day		
Conditions and measures	related to personal protection, hy	giene and health evaluation		
Without LEV				
Ensure operation is under	taken outdoors. , or: Provide a good	d standard of general ventilation (not		
Vear chemically resistant	<u>es per hour)</u> gloves (tested to EN374) in combin	ation with 'basic' employee		
training.				
Other conditions affecting	g workers exposure			
Indoor				
Assumes activities are at a	ambient temperature (unless stated	l differently)		
4.2.8. Control of worker	r exposure: Milling, grinding ar	nd similar activities. (PROC24)		
PROC24	High (mechanical) energy	work-up of substances bound in mater	rials and/or articles	
Amount used (or contain	ed in articles), frequency and durat	tion of use/exposure		
Covers exposure up to (ho	ours/event):	>4 h/day		
Conditions and measures	related to personal protection by	giene and health evaluation		
With LEV				
Efficiency of at least:			80 %	
Provide extract ventilation	n to points where emissions occur			
Wear chemically resistant	gloves (tested to EN374) in combin	ation with 'basic' employee		
training.				
Other conditions affectin	g workers exposure			
Indoor				
Assumes activities are at a	amplent temperature (unless stated	l differentiy)		
assume high fugacity				
4.2.9. Control of worker	exposure: Small package fillir	ng (PROC9)	a ta d Clife a l'a a l'a alcalla a constale ta el	
PROC9	I ransfer of substance or	preparation into small containers (dedic	ated filling line, including weighing)	
Amount used (or contain	ed in articles), frequency and durat	tion of use/exposure		
Covers exposure up to (ho	ours/event):	>4 h/day		
Conditions and measures	related to personal protection, hy	giene and health evaluation		
With LEV				
Efficiency of at least:			90 %	
Wear chemically resistant	n to points where emissions occur	ation with 'basic' employee		
training.				
Other conditions affecting	g workers exposure			
Indoor	ambient temperature (unless stated	differently)		
Assumes activities are at a	ampient temperature (unless stated	i unierentiy)		
assume mgn rugacity				
4.2.10. Control of worke	er exposure: Production or pre	paration or articles by tabletting, co	npression, extrusion or pelletisation (PROC14)	
PROC14	Production of preparation	is or articles by tabletting, compression,	extrusion, pelletisation	
Amount used (or contain	ed in articles), frequency and durat	ion of use/exposure		
Covers exposure up to (ho	ours/event):	>4 h/day		
Conditions and measures	related to personal protection, hy	giene and health evaluation		
Without LEV				
Provide extract ventilation	n to points where emissions occur			

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Other conditions affecting	g workers exposure				
Indoor					
Assumes use at not more	than 20°C above ambient temperatu	ire, unless stated differently			
4.2.11. Control of worke	r exposure: Laboratory activiti	es (PROC15)			
PROC15	Use as laboratory reagent				
Amount used (or contained	ed in articles), frequency and durati	on of use/exposure			
Covers exposure up to (ho	urs/event):	> 4 h/day			
Conditions and measures	related to personal protection, hyg	iene and health evaluation			
Without LEV					
Handle within a fume cup	poard or implement suitable equival	ent methods to minimise			
Wear chemically resistant	gloves (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting	g workers exposure				
Indoor	· ·				
Assumes activities are at a	mbient temperature (unless stated	differently)			
4.2.12. Control of worke	er exposure: Bulk transfers (PR	OC8b)	•		
PROC8b	Transfer of substance or p	preparation (charging/discharging) from/to	vessels/large containers at dedicated facilities		
Amount used (or contained	ed in articles), frequency and durati	on of use/exposure			
Covers exposure up to (ho	urs/event):	> 4 h/day			
Conditions and measures	related to personal protection, hyg	iene and health evaluation			
Without LEV					
Ensure operation is under	taken outdoors				
Ensure material transfers a coupling.	are under containment or extract ve	ntilation. Clear lines prior to de-			
Wear chemically resistant training.	gloves (tested to EN374) in combina	ition with 'basic' employee			
Other conditions affecting	ς workers exposure				
Outdoor					
Assumes activities are at a	mbient temperature (unless stated	differently)			
4.2.13. Control of worke	r exposure: Equipment cleanin	ng and maintenance (PROC8a)			
PROC8a	Transfer of substance or p facilities	preparation (charging/discharging) from/to	vessels/large containers at non dedicated		
Amount used (or contained	ed in articles), frequency and durati	on of use/exposure			
Covers exposure up to (ho	urs/event):	> 4 h/day			
Conditions and measures	related to personal protection, hyg	iene and health evaluation			
Without LEV					
Drain down system prior t	o equipment break-in or maintenan	ce			
Retain drain downs in sea	ed storage pending disposal or for s	ubsequent recycle			
Wear chemically resistant gloves (tested to EN374) in combination with specific activity training.					
Other conditions affecting	s workers exposure				
Indoor/Outdoor use.					
Assumes activities are at a	mbient temperature (unless stated	differently)			
4.2.14. Control of worke	r exposure: General exposure	s (open systems) (PROC23)			
PROC23	Open processing and tran	sfer operations with minerals/metals at e	levated temperature		
Amount used (or contained	ed in articles), frequency and durati	on of use/exposure			
Covers exposure up to (ho	Covers exposure up to (hours/event): >4 h/day				
Conditions and measures	Conditions and measures related to personal protection, hygiene and health evaluation				
Without LEV					
Ensure material transfers	are under containment or extract ve	ntilation			
Wear chemically resistant gloves (tested to EN374) in combination with specific activity					

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Other conditions affecting work	ers exposure		
Indoor/Outdoor use			
Assumes activities are at ambien	t temperature (unless stated differently	/)	
4 2 15 Control of worker exp	osure: Bulk product storage (PRO		
PROC1	Use in closed process, no likelihood of	exposure (no sampling)	
PROC2	Use in closed, continuous process with	occasional controlled exposure	(with sampling)
Amount used (or contained in a	ticles) frequency and duration of use		
Covers exposure up to (bours/ev	ent):		
Conditions and measures relate		ay	
Conditions and measures related	to personal protection, hygiene and r		
less than 3 to 5 air changes per h	ourdoors. , or: Provide a good standard our)	of general ventilation (not	
Ensure dedicated sample points	are provided		
Wear chemically resistant gloves	(tested to EN374) in combination with	'basic' employee	
training.			
Other conditions affecting work	ers exposure		
Outdoor	the second state of the second state of the	<u>, </u>	
Assumes activities are at ambien	t temperature (unless stated differently	/)	
4.3. Exposure estimation	n and reference to its sour	ce	
4 3 1 Environmental release	and exposure General measures ((skin irritants) (FRC2_FSVC	C SPERC 2.2 v1)
Information for contributing exp	posure scenario		001 21(0 2.2.41)
No additional information.			
4.3.2. Worker exposure General e	xposures (closed systems) (PROC1)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
effects	0.01 mg/m ³	0.003	conclude safe use
systemic effects	0,01 mg/m	0,000	
Sum RCR - Long-term -		0,003	
systemic effects 4.3.3. Worker exposure General e	xposures (closed systems) - Process sa	mpling - Outdoor (PROC2)	
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
effects	0.5 mg/m ³	0.125	conclude safe use
systemic effects	0,5 mg/m	0,125	Used ECETOC TRAINDUEL.
Sum RCR - Long-term -		0,125	
systemic effects	vnosures (closed systems) + Batch proc		
Pouto of exposure and type of	Exposure estimate	RCR	Method
effects	Exposure estimate	NCN .	Wethou
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
effects	1	0.25	conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m ²	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
systemic effects	maring (PDOC2)		
+.5.5. worker exposure Process sa			
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
systemic effects		0.25	
SUM KCK - LONG-TERM -		0,25	

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4.3.6. Worker exposure Genera	l exposures (open systems) (PR	OC4)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Systemic effects Sum RCR - Long-term - systemic effects		0,875	
4.3.7. Worker exposure Mixing oper	rations (open systems) (PROC5)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
systemic effects	ding and similar activities (PROC24)		
A.S.O. WORKER EXPOSURE Winning, grif	Eurocure estimate	DCD	Method
effects	Exposure estimate	KCK	Methoa
Inhalation - Long-term - systemic effects	2 mg/m ³	0,5	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,5	
4.3.9. Worker exposure Small packa	age filling (PROC9)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	2 mg/m ³	0,5	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,5	
4.3.10. Worker exposure Production	n or preparation or articles by tablett	ing, compression, extrusion or p	pelletisation (PROC14)
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	1 mg/m³	0,25	Used ECETOC TRA model.
Systemic enects Sum RCR - Long-term -		0,25	
systemic effects	westivities (BROC1E)		
4.5.11. Worker exposure Laboratory		DCD	Method
effects	Exposure estimate	NCK .	Methou
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,5 mg/m ³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term -		0,125	
4.3.12. Worker exposure Bulk trans	fers (PROC8b)		
Route of exposure and type of	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
effects Inhalation - Long-term -	3,5 mg/m ³	0,875	conclude safe use Used ECETOC TRA model.
systemic effects Sum RCR - Long-term -		0.875	
systemic effects		0,070	
4.3.13. Worker exposure Equipmen	t cleaning and maintenance (PROC8a)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to

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Sum RCR - Long-term - systemic effects		0,25			
4.3.14. Worker exposure General ex	posures (open systems) (PROC23)				
Route of exposure and type of effects	Exposure estimate	RCR	Method		
Inhalation - Long-term - systemic effects	3 mg/m ³	0,75	Used ECETOC TRA model.		
Sum RCR - Long-term - systemic effects		0,75			
4.3.15. Worker exposure Bulk produ	ct storage (PROC1, PROC2)				
Route of exposure and type of effects	Exposure estimate	RCR	Method		
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use		
Inhalation - Long-term - systemic effects	0,35 mg/m³	0,088	Used ECETOC TRA model.		
Sum RCR - Long-term - systemic effects		0,088			
4.4. Guidance to Downstrear	n User (DU) to evaluate whet	her he works inside the bou	indaries set by the ES		
4.4.1. Environment					
Guidance - Environment	No exposure assessment	No exposure assessment presented for the environment			
4.4.2. Health	· ·				
Guidance - Health Available hazard data do not enable the derivation Management Measures are based on qualitative ris support the need for a DNEL to be established for on national Occupational Exposure Limits or other equidation Measures/Operational Conditions are adopted, there least equivalent levels.			JEL for dermal irritant effects. Risk acterisation. Available hazard data do not ealth effects. Users are advised to consider values. Where other Risk Management should ensure that risks are managed to at		

EXPOSUR SCENARIO SULPHUR

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5. 05: Use as binders and release agents

5.1. Title section

5. Use as binders and release agents - Industrial

Association ref code: CONC.16.LL	J.10			1	
Environment					
GEN-05	General measu	General measures (skin irritants)		ERC4, ESVOC SPERC 4.10a.v1	
Worker					
CS15	General expos	ures (clo	sed systems)	PROC1	
CS15	General expos Outdoor	ures (clo	sed systems) - Process sampling -	PROC2	
CS15	General expos	ures (clo	sed systems) + Batch process	PROC3	
CS16	General expos	ures (op	en systems)	PROC4	
CS30	Mixing operati	ions (ope	en systems)	PROC6	
CS98	Roller, spreade	er, flow a	application	PROC10	
CS4	Dipping, imme	rsion an	d pouring	PROC13	
CS130	Article formati	on in mo	buld	PROC14	
CS14	Bulk transfers			PROC8b	
CS39	Equipment cle	aning an	d maintenance	PROC8a	
Processes, tasks, activities covered Cover (inclu Indus Assessment method The E		Covers (incluc Indust The EC	vers the use as binders and release agents including material transfers, mixing, application cluding spraying and brushing), mould forming and casting, and handling of waste. dustrial use e ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
5.2 Conditions of use a	offecting expos	ura			
5.2.1 Control of anvironment			ouros (skin irritanta) (EBCA ES)(OC S	REPC 4 100 v1)	
5.2.1. Control of environment	Use of non-reactive r		g aid at industrial site (no inclusion into or o	onto article)	
	Use as hinders and re		ents: Industrial (SLI3)		
		licuse ug			
Product (article) characteristics					
Physical form of product			Solid at STP, liquid at elevated operating t	emperature, vapour pressure < 0.5 kPa	
Concentration of substance in pr	oduct		<= 100 %		
Concentration of substance in pr	oduct		(unless otherwise stated)		
Vapour pressure			Liquid, vapour pressure 0.5 - 10 kPa at STF		
Amount used, frequency and du	ration of use (or from	n service	life)		
Fraction of EU tonnage used in re	egion:		216338,722 t/yr		
Covers daily exposures up to 8 h differently)	ours (unless stated				
Conditions and measures relate	d to personal protecti	on, hygi	ene and health evaluation		
Avoid direct skin contact with product. Identify potential areas for (tested to EN374) if hand contact with substance likely. Clean up occur. Wash off any skin contamination immediately. Provide ba			for indirect skin contact. Wear gloves p contamination/spills as soon as they asic employee training to prevent / develon	General measures (skin irritants)	
Other skin protection measures and the reberning of the skin protection measures a high dispersion activities which a	such as impervious sui are likely to lead to sub	its and fa	acceshields may be required during aerosol release, e.g. spraying.	General measures (skin irritants)	
5.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)					
PROC1	Use in closed proce	ess, no	likelihood of exposure (no sampling)		
Amount used (or contained in a	rticles), frequency and	d duratio	on of use/exposure		
Continuous process					
Covers exposure up to (hours/ev	vent):		> 4 h/day		
Conditions and measures relate	Conditions and measures related to personal protection, hygiene and health evaluation				
Handle substance within a closed	d system				
Use in closed process, no likelihood of exposure					

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Other conditions affecting we	orkers exposure				
Indoor					
Assumes activities are at amb	ient temperature (unless stated o	lifferently)			
5.2.3. Control of worker ex	posure: General exposures (closed systems) - Process sampling -	- Outdoor (PROC2)		
PROC2	Use in closed, continuous	process with occasional controlled expos	sure (with sampling)		
Amount used (or contained i	n articles), frequency and duration	on of use/exposure			
Continuous process	<i>"</i> , , ,				
Covers exposure up to (hours	/event):	> 4 h/day			
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			
Without LEV	······································				
Handle substance within a clo	osed system. Sample via a closed l	oop or other system to avoid exposure			
Wear chemically resistant glor	ves (tested to EN374) in combina	ion with 'basic' employee			
Other conditions affecting w	orkers exposure				
Outdoor	· · · · · •				
Assumes activities are at amb	ient temperature (unless stated o	lifferently)			
524 Control of worker ex	nosure: General exposures ((closed systems) + Batch process (PR	003)		
PROC3	Use in closed batch proces	elosed systems) + Daten process (in	ng)		
Amount used (or contained i	n articles), frequency and duratio	on of use/exposure			
Covers exposure up to (hours	/event):	> 4 h/day			
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			
Without LEV					
Provide closed or ventilated s	ample points.				
Wear chemically resistant glo	ves (tested to EN374) in combinat	tion with 'basic' employee			
Other conditions affecting w	orkers exposure		I		
Outdoor					
Assumes activities are at amb	ient temperature (unless stated o	lifferently)			
525 Control of worker ex	nosure: General exposures (onen systems) (PROCA)			
PROC4	Use in batch and other pro	cess (synthesis) where opportunity for ex	xposure arises		
Amount used (or contained i	n anticles) from one and duratic		•		
Amount used (or contained I	(overt):	> 4 b /day			
Covers exposure up to (nours	/event).	> 4 11/0ay			
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			
Without LEV					
Provide extract ventilation to	material transfer points and othe	r openings			
Less than 3 to 5 air changes pe	en outdoors. , or: Provide a good : er hour)	standard of general ventilation (not			
Wear chemically resistant glo training.	ves (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting we	orkers exposure				
Indoor/Outdoor use.					
Assumes activities are at amb	ient temperature (unless stated o	lifferently)			
5.2.6. Control of worker ex	posure: Mixing operations (o	ppen systems) (PROC6)			
PROC6	Calendering operations				
Amount used (or contained i	n articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours	/event):	> 4 h/day			
Continuous process	Continuous process				
Conditions and measures rela	ated to personal protection. hygi	ene and health evaluation			
Without LEV	,				
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)					
Wear chemically resistant glo	ves (tested to EN374) in combina	tion with specific activity			
training.	training.				

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Other conditions affecting wor	kers exposure		
Indoor			
elevated temperature			
5.2.7. Control of worker exp	osure: Roller, spreader, flo	w application (PROC10)	
PROC10	Roller application or brush	ing	
		<u> </u>	
Amount used (or contained in	articles), frequency and durate	on of use/exposure	
Covers exposure up to (nours/e	event):	> 4 n/day	
Conditions and measures related	ed to personal protection, hygi	ene and health evaluation	
Without LEV			
Provide a good standard of gen	eral ventilation (not less than 3	to 5 air changes per hour)	
Wear chemically resistant glove	es (tested to EN374) in combina	tion with 'basic' employee	
Other conditions offecting wer	kors ovnosuro		I
	keis exposule		
5.2.8. Control of worker exp	osure: Dipping, immersion	and pouring (PROC13)	
PROC13	I reatment of articles by di	pping and pouring	
Amount used (or contained in	articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours/e	event):	> 4 h/day	
Continuous process			
Conditions and measures related	ed to personal protection, hygi	ene and health evaluation	
Without LEV			
Wear chemically resistant glove	es (tested to EN374) in combina	tion with 'basic' employee	
training.	· ·		
Other conditions affecting wor	kers exposure		
Outdoor			
elevated temperature			
5.2.9. Control of worker expe	osure: Article formation in	mould (PROC14)	
PROC14	Production of preparations	or articles by tabletting, compression, ex	trusion, pelletisation
Amount used (or contained in	articles), frequency and duration	on of use/exposure	
Covers exposure up to (hours/e	event):	> 4 h/day	
Conditions and measures relate	ed to personal protection, hyg	ene and health evaluation	l .
Without LEV	- (Lasta d La EN1074) 's same b's	the state of the s	
training.	es (tested to EN374) in combina	tion with 'basic' employee	
Other conditions affecting wor	kers exposure		
Indoor			
Assumes use at not more than 2	20°C above ambient temperatu	re, unless stated differently	
	Transfer of substance or n	reparation (charging/discharging) from/to	vessels/large containers at dedicated facilities
			vesseis/large containers at dedicated facilities
Amount used (or contained in	articles), frequency and duration	on of use/exposure	
Covers exposure up to (hours/e	event):	>4 h/day	
Conditions and measures related	ed to personal protection, hyg	ene and health evaluation	
Without LEV			
Ensure operation is undertaken less than 3 to 5 air changes per	outdoors. , or: Provide a good hour)	standard of general ventilation (not	
Ensure material transfers are un	, nder containment or extract ve	ntilation. Clear lines prior to de-	
coupling. Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee			
training.			
Other conditions affecting wor	kers exposure		
Outdoor			

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Assumes activities are at ambient	temperature (unless stated differently	/)	
5.2.11. Control of worker expo	sure: Equipment cleaning and m	aintenance (PROC8a)	·
PROC8a	Fransfer of substance or preparatio	n (charging/discharging) from/to	vessels/large containers at non dedicated
f	acilities		
Amount used (or contained in art	icles), frequency and duration of use/	/exposure	
Covers exposure up to (hours/even	nt): >4 h/da	ау	
Conditions and measures related	to personal protection, hygiene and h	nealth evaluation	
Without LEV			
Drain down system prior to equipr	nent break-in or maintenance		
Retain drain downs in sealed stora	ge pending disposal or for subsequent	t recycle	
Wear chemically resistant gloves (1 training.	ested to EN374) in combination with s	specific activity	
Other conditions affecting worker	's exposure		
Indoor/Outdoor use.			
Assumes activities are at ambient	temperature (unless stated differently	()	
5.3. Exposure estimatior	and reference to its sour	ce	
5.2.1 Environmental release a	ad expective Coneral measures ((okin irritonto) (EBC4_ESVOC)	
5.5.1. Environmental release a	la exposure General measures (skin irritants) (ERC4, ESVOC	SPERC 4.10a.VI)
No additional information			
5.2.2 Worker expective Conoral ext	essures (closed systems) (PROC1)		
S.S.Z. Worker exposure General exp	Exposure estimate	PCP	Mothod
effects	LAPOSULE EStimate	nen	method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	0,01 mg/m ³	0,003	Used ECETOC TRA model.
systemic effects			
Sum RCR - Long-term -		0,003	
5.3.3. Worker exposure General exi	oosures (closed systems) - Process sar	mpling - Outdoor (PROC2)	
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	0,5 mg/m ³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term -		0,125	
systemic effects			
5.3.4. Worker exposure General exposure G	oosures (closed systems) + Batch proc	cess (PROC3)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
systemic effects Sum RCR - Long-term -	+	0.25	
systemic effects		-,	
5.3.5. Worker exposure General exp	oosures (open systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
systemic effects Sum RCR - Long-term -		0,875	
systemic effects			
5.3.6. Worker exposure Mixing ope	rations (open systems) (PROC6)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Inhalation - Long-term -	3,5 mg/m ³	0,875	
Sum RCR - Long-term -		0,875	
Systemic Checks			

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5.3.7. Worker exposure Roller,	spreader, flow application (PRO	C10)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1,5 mg/m ³	0,375	Used ECETOC TRA model.
Sum RCR - Long-term -		0,375	
5.3.8. Worker exposure Dipping im	mersion and nouring (PROC13)		
Boute of exposure and time of	Exposure estimate	PCP	Mothod
effects	Exposure estimate	ncn	Wethou
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
systemic effects	action in mould (PROC14)		
Bauta of autoence and ture of		DCD	Mathad
effects	Exposure estimate	RCR	Wethod
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Systemic effects Sum RCR - Long-term -		0,25	
5 3 10 Worker exposure Bulk transf	fers (PROC8b)		I
Bouto of exposure and type of	Exposure estimate	PCP	Method
effects	Exposure estimate		Wethou
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
5.3.11. Worker exposure Equipment	t cleaning and maintenance (PROC8a))	
Boute of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
systemic effects		0.25	
systemic effects		0,25	
5.4. Guidance to Downstream	m User (DU) to evaluate whet	her he works inside the b	oundaries set by the ES
5.4.1. Environment			
Guidance - Environment No exposure assessment presented for the environment			nt
5.4.2. Health			
Guidance - Health	Available bazard data do	not enable the derivation of a	DNEL for dermal irritant effects. Risk
Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.			haracterisation. Available hazard data do not ir health effects. Users are advised to consider lent values. Where other Risk Management sers should ensure that risks are managed to at

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6. 06: Rubber production and processing

6.1. Title section

6. Rubber production and processing - Industrial

Association ref code: CONC.21.LU.19			
Environment			
GEN-06	General meas	ures (skin irritants)	ERC4, ERC6d, ESVOC SPERC 4.19.v1
Worker			
CS15	General expos	sures (closed systems)	PROC1
CS15	General expos Outdoor	sures (closed systems) - Process sampling -	PROC2
CS15	General expos	sures (closed systems) + Batch process	PROC3
CS16	General expos	sures (open systems)	PROC4
CS30	Mixing operations (open systems)		PROC5
CS64	Calendering (including Banburys)		PROC6
CS10	Spraying		PROC7
CS90	Small scale weighing		PROC9
CS4	Dipping, immersion and pouring		PROC13
CS73	Pressing uncured rubber blanks		PROC14
CS102	Finishing operations		PROC21
CS36	Laboratory activities		PROC15
CS14	Bulk transfers		PROC8b
CS39	Equipment cleaning and maintenance		PROC8a
Processes, tasks, activities covered		Manufacture of tyres and general rubber artic	les within closed or contained systems, including

	incidental exposures during processing of raw (uncured) rubber, handling and mixing of rubber additives, calendaring, vulcanising, cooling and finishing as well as maintenance.
	Industrial use
Assessment method	The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated

6.2. Conditions of use affecting exposure

6.2.1. Control of environmental exposure: General measures (skin irritants) (ERC4, ERC6d, ESVOC SPERC 4.19.v1)		
ERC4	Use of non-reactive processing aid at industrial site (no inclusion into or onto article)	
ERC6d	Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)	
ESVOC SPERC 4.19.v1	Rubber production and processing: Industrial (SU10)	

Product (article) characteristics		
Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa	
Concentration of substance in product	<= 100 %	
Concentration of substance in product	(unless otherwise stated)	
Vapour pressure Liquid, vapour pressure 0.5 - 10 kPa at STP		
Amount used, frequency and duration of use (or from service life)		

Fraction of EU tonnage used in region:	273627,095 t/yr		
Covers daily exposures up to 8 hours (unless stated			
differently)			
Conditions and measures related to personal protection, hygiene and health evaluation			
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves		General measures (skin irritants)	
(tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they			

occur. Wash off any skin contamination immediately. Provide basic employee training to prevent /	
Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.	General measures (skin irritants)
C 2 2 Control of worker exposure: Constal exposures (closed exptems) (DBOC4)	

.2.2. Control of worker exposure: General exposures (closed systems) (PROCT)		
PROC1	Use in closed process, no likelihood of exposure (no sampling)	

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Amount used (or contained in	articles), frequency and duration	on of use/exposure		
Covers exposure up to (hours/e	event):	> 4 h/day		
Continuous process				
Conditions and measures relat	ed to personal protection, hygi	iene and health evaluation		
Handle substance within a close	ed system			
Use in closed process, no likelih	nood of exposure			
Other conditions affecting wor	kers exposure			
Indoor				
Assumes activities are at ambie	ent temperature (unless stated	differently)		
6.2.3. Control of worker exp	osure: General exposures	(closed systems) - Process sampling -	Outdoor (PROC2)	
PROC2	Use in closed, continuous	process with occasional controlled expos	ure (with sampling)	
Amount used (or contained in	articles), frequency and durati	on of use/exposure		
Covers exposure up to (hours/e	event):	> 4 h/day		
Continuous process				
Conditions and measures relat	ed to personal protection, hyg	iene and health evaluation		
Without LEV				
Handle substance within a close	ed system. Sample via a closed	loop or other system to avoid exposure		
	(h. h. h. 51074);			
training.	es (tested to EN374) in combina	tion with 'basic' employee		
Other conditions affecting wor	kers exposure			
Outdoor				
Assumes activities are at ambie	ent temperature (unless stated	differently)		
6.2.4. Control of worker exp	osure: General exposures	(closed systems) + Batch process (PR	OC3)	
PROC3	Use in closed batch proce	ss (synthesis or formulation) (with sampli	ng)	
Amount used (or contained in	articles), frequency and durati	on of use/exposure		
Covers exposure up to (hours/e	event):	> 4 h/day		
Conditions and measures relat	ed to personal protection, hygi	iene and health evaluation		
Without LEV				
Provide closed or ventilated sar	Provide closed or ventilated sample points.			
Wear chemically resistant glove training.	es (tested to EN374) in combina	tion with 'basic' employee		
Other conditions affecting wor	kers exposure			
Outdoor				
Assumes activities are at ambie	ent temperature (unless stated	differently)		
6.2.5. Control of worker exp	osure: General exposures	(open systems) (PROC4)		
PROC4	Use in batch and other pro	ocess (synthesis) where opportunity for ex	posure arises	
Amount used (or contained in	Amount used (or contained in articles), frequency and duration of use/exposure			
Covers exposure up to (hours/e	Covers exposure up to (hours/event): >4 h/day			
Conditions and measures relat	ed to personal protection, hyg	ene and health evaluation		
Without LEV				
Provide extract ventilation to material transfer points and other openings				
Ensure operation is undertaken	Ensure operation is undertaken outdoors., or: Provide a good standard of general ventilation (not			
Wear chemically resistant glove	es (tested to EN374) in combina	tion with 'basic' employee		
Other conditions affecting wor	kers exposure			
Indoor/Outdoor use.				
Assumes activities are at ambie	Assumes activities are at ambient temperature (unless stated differently)			
6.2.6. Control of worker exp	osure: Mixing operations (open systems) (PROC5)		
PROC5	PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant			
	contact)			

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Amount used (or contained in articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours/event):	>4 h/day			
Conditions and measures related to personal protection, hygi	iene and health evaluation			
Without LEV				
Provide a good standard of general ventilation (not less than 3	to 5 air changes per hour)			
Wear chemically resistant gloves (tested to EN374) in combina training.	tion with 'basic' employee			
Other conditions affecting workers exposure				
Indoor				
Assumes activities are at ambient temperature (unless stated of	differently)			
6.2.7. Control of worker exposure: Calendering (includ	ing Banburys) (PROC6)			
PROC6 Calendering operations				
Amount used (or contained in articles), frequency and durati	on of use/exposure			
Covers exposure up to (hours/event):	> 4 h/day			
Continuous process				
Without LEV				
Provide a good standard of general ventilation (not less than 2	to 5 air changes per hour)			
Wear chemically resistant gloves (tested to EN374) in combina	tion with specific activity			
training.				
Other conditions affecting workers exposure				
Indoor				
elevated temperature				
Vulcanisation				
Cooling cured articles				
6.2.8. Control of worker exposure: Spraying (PROC7)				
PROC7 Industrial spraying				
Amount used (or contained in articles), frequency and durati	on of use/exposure			
Covers exposure up to (hours/event):	> 4 h/day			
Conditions and measures related to personal protection, hyg	iene and health evaluation			
With LEV				
Efficiency of at least:		95 %		
Provide the operation with a properly sited receiving hood				
Wear chemically resistant gloves (tested to EN374) in combina				
training.				
Other conditions affecting workers exposure				
Indoor/Outdoor use.				
Assumes activities are at ambient temperature (unless stated of	differently)			
Vulcanisation				
6.2.9. Control of worker exposure: Small scale weighin	6.2.9. Control of worker exposure: Small scale weighing (PROC9)			
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)				
Amount used (or contained in articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours/event):	> 4 h/day			
Conditions and measures related to personal protection, hygi	iene and health evaluation			
Without LEV				
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour)				
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.				
Other conditions affecting workers exposure				
Indoor	Indoor			
Assumes activities are at ambient temperature (unless stated of				

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6.2.10. Control of worker ex	trol of worker exposure: Dipping, immersion and pouring (PROC13)				
PROC13	Treatment of articles by dir	pping and pouring			
Amount used (or contained in	n articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours,	/event):	>4 h/day			
Continuous process					
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			
Without LEV					
Wear chemically resistant glov training.	ves (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting wo	orkers exposure		·		
Outdoor					
elevated temperature					
6.2.11. Control of worker ex	xposure: Pressing uncured	ubber blanks (PROC14)			
PROC14	Production of preparations	or articles by tabletting, compression, ex	trusion, pelletisation		
Amount used (or contained in	n articles). frequency and duration	on of use/exposure			
Covers exposure up to (hours)	/event):	> 4 h/day			
Conditions and moscures rela	ted to personal protection husi	ene and health evaluation			
Without LEV	nea to personal protection, hygi				
Wear chemically resistant glov	ves (tested to EN374) in combina	tion with 'hasic' employee			
training.					
Other conditions affecting wo	orkers exposure				
Indoor	20%C - h	en el en el			
Assumes use at not more than	1 20°C above ambient temperatu	re, unless stated differently			
6.2.12. Control of worker ex	xposure: Finishing operation	ns (PROC21)			
PROC21	Low energy manipulation of	of substances bound in materials and/or a	articles		
Amount used (or contained in	n articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours,	/event):	> 4 h/day			
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			
Without LEV					
Wear chemically resistant glow training.	ves (tested to EN374) in combina	tion with 'basic' employee			
Other conditions affecting wo	orkers exposure				
Indoor/Outdoor use.					
Assumes use at not more than	ו 20°C above ambient temperatu	re, unless stated differently			
6.2.13. Control of worker ex	xposure: Laboratory activiti	es (PROC15)			
PROC15	Use as laboratory reagent				
Amount used (or contained in	n articles). frequency and duration	on of use/exposure			
Covers exposure up to (hours,	/event):	> 4 h/day			
Conditions and measures rela	tod to percend protection, bygi	and and health evaluation			
Without LEV	neu to personal protection, nygi				
Handle within a fume cupboa	rd or implement suitable equival	ant methods to minimise			
exposure.	exposure.				
Wear chemically resistant glov training.	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.				
Other conditions affecting wo	orkers exposure				
Indoor					
Assumes activities are at amb	ient temperature (unless stated o	lifferently)			
6.2.14. Control of worker ex	xposure: Bulk transfers (PR	OC8b)			
PROC8b	Transfer of substance or p	reparation (charging/discharging) from/to	vessels/large containers at dedicated facilities		
Amount used (or contained in	n articles), frequency and duration	on of use/exposure			
Covers exposure up to (hours,	/event):	> 4 h/day			
Conditions and measures rela	ated to personal protection, hygi	ene and health evaluation			

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Without LEV			
Ensure operation is undertaken ou	utdoors. , or: Provide a good standard o	of general ventilation (not	
less than 3 to 5 air changes per ho	ur)	Need lines aview to de	
coupling.	of containment of extract ventilation. C	liear lines prior to de-	
Wear chemically resistant gloves (training.	tested to EN374) in combination with (basic' employee	
Other conditions affecting worke	rs exposure		
Outdoor			
Assumes activities are at ambient	temperature (unless stated differently)	
6.2.15. Control of worker expo	sure: Equipment cleaning and ma	aintenance (PROC8a)	
PROC8a	Transfer of substance or preparation facilities	n (charging/discharging) from/to	vessels/large containers at non dedicated
Amount used (or contained in art	icles), frequency and duration of use/	exposure	
Covers exposure up to (hours/eve	nt): >4 h/da	ау	
Conditions and measures related	to personal protection, hygiene and h	ealth evaluation	
Without LEV			
Drain down system prior to equip	ment break-in or maintenance		
Retain drain downs in sealed stora	age pending disposal or for subsequent	recycle	
Wear chemically resistant gloves (tested to EN374) in combination with s	specific activity	
training.			
Other conditions affecting worke	rs exposure		
Indoor/Outdoor use.	tomporature (uplace stated differently	1	
Assumes activities are at amplent	temperature (unless stated differently))	L
6.3. Exposure estimation	h and reference to its sour	ce	
6.3.1. Environmental release a	nd exposure General measures (skin irritants) (ERC4, ERC6d,	ESVOC SPERC 4.19.v1)
Information for contributing exp	osure scenario		
No additional information.			
6.3.2. Worker exposure General ex	posures (closed systems) (PROC1)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	0,01 mg/m ³	0,003	Used ECETOC TRA model.
Systemic effects Sum RCR - Long-term -		0,003	
systemic effects			
6.3.3. Worker exposure General ex	posures (closed systems) - Process san	mpling - Outdoor (PROC2)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	0,5 mg/m ³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term -		0,125	
6.3.4. Worker exposure General ex	posures (closed systems) + Batch proc	ess (PROC3)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
6.3.5. Worker exposure General ex	posures (open systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
CHECUS		1	conclude sale use

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Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Systemic effects Sum RCR - Long-term -		0.875	
systemic effects			
6.3.6. Worker exposure Mixing oper	rations (open systems) (PROC5)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
6.3.7. Worker exposure Calendering	(including Banburys) (PROC6)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects	25	0.075	
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	
Sum RCR - Long-term - systemic effects		0,875	
6.3.8. Worker exposure Spraying (Pl	ROC7)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Inhalation - Long-term -	1 mg/m ³	0,25	
Sum RCR - Long-term -		0,25	
6.3.9. Worker exposure Small scale	weighing (PROC9)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
6.3.10. Worker exposure Dipping, in	nmersion and pouring (PROC13)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
systemic effects	nourod rubbor blanks (PROC14)		
6.5.11. Worker exposure Pressing u		DCD	Mathad
effects	Exposure estimate	KCK	Ινιετησά
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
6.3.12. Worker exposure Finishing o	perations (PROC21)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects	0 mg/kg hodyweicht/dou	0	
effects		0.75	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3 mg/m²	0,75	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,75	
6.3.13. Worker exposure Laboratory	activities (PROC15)		
Route of exposure and type of effects	Exposure estimate	RCR	Method

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Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	0,5 mg/m³	0,125	Used ECETOC TRA model.	
Sum RCR - Long-term -		0,125		
systemic effects				
6.3.14. Worker exposure Bulk trans	ifers (PROC8b)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	3,5 mg/m³	0,875	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,875		
6.3.15. Worker exposure Equipmen	t cleaning and maintenance (PROC8a	a)		
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	1 mg/m³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,25		
6.4. Guidance to Downstrea	m User (DU) to evaluate whe	ther he works inside the	boundaries set by the ES	
6.4.1. Environment				
Guidance - Environment	No exposure assessmen	No exposure assessment presented for the environment		
6.4.2. Health				
Guidance - Health Available hazard data d Management Measures support the need for a I national Occupational E Measures/Operational 0 least equivalent levels.		not enable the derivation of are based on qualitative risk NEL to be established for oth posure Limits or other equiv onditions are adopted, then	a DNEL for dermal irritant effects. Risk characterisation. Available hazard data do not ner health effects. Users are advised to consider alent values. Where other Risk Management users should ensure that risks are managed to at	

EXPOSUR SCENARIO SULPHUR

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7.07: Use as a fuel

7.1. Title section

7. Use as a fuel - Industrial

Association ref code: CONC.24.LU.1	12			1	
Environment					
GEN-07	General meas	ures (ski	n irritants)	ERC7, ESVOC SPERC 7.12a.v1	
Worker					
CS15	General exposures (clo		osed systems)	PROC1	
CS15	General expos Outdoor	ures (clo	osed systems) - Process sampling -	PROC2	
CS15	General expos	ures (clo	osed systems) + Batch process	PROC3	
CS2	Process sampl	ing		PROC3	
CS16	General expos	ures (op	en systems)	PROC4	
CS107	(closed system	ıs)		PROC16	
CS14	Bulk transfers			PROC8b	
CS39	Equipment cle	aning ar	nd maintenance	PROC8a	
CS85	Bulk product s	torage		PROC1, PROC2	
Processes, tasks, activities covered Assessment method		Cover conta transf Indus The E	Covers the use as a fuel (or fuel additives and additive components) within closed or contained systems, including incidental exposures during activities associated with its transfer, use, equipment maintenance and handling of waste. Industrial use The ECETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
7.2. Conditions of use aff	ecting expos	ure			
7.2.1. Control of environmental	exposure: Gene	ral mea	asures (skin irritants) (ERC7, ESVOC \$	PERC 7.12a.v1)	
ERC7 U	se of functional flui	d at indu	ustrial site	,	
ESVOC SPERC 7.12a.v1 U	se as a fuel: Industr	ial (SU3))		
Product (article) characteristics					
Physical form of product			Solid at STP, liquid at elevated operating t	emperature, vapour pressure < 0.5 kPa	
Concentration of substance in prod	uct		<= 100 %		
Concentration of substance in prod	uct		(unless otherwise stated)		
Vapour pressure			vapour pressure < 0.5 kPa at STP		
Amount used, frequency and dura	tion of use (or from	n service	e life)		
Fraction of EU tonnage used in regi	on:		9634,326 t/yr		
covers daily exposures up to 8 hour differently)	rs (unless stated				
Conditions and measures related t	o personal protecti	ion, hygi	iene and health evaluation		
Avoid direct skin contact with product. Identify potential areas for indirect skin contact. We (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as so occur. Wash off any skin contamination immediately. Provide basic employee training to p minimise exposures and to report any skin problems that may develop				General measures (skin irritants)	
7.2.2. Control of worker exposu	re: General expo	osures	(closed systems) (PROC1)		
PROC1 U	se in closed proc	ess, no	likelihood of exposure (no sampling)		
Amount used (or contained in articles), frequency and duration of use/exposure					
Covers exposure up to (hours/event):			> 4 h/day		
Conditions and measures related t	o personal protecti	ion, hygi	iene and health evaluation		
Handle substance within a closed sy	ystem				
No other specific measures identified	ed				
Other conditions affecting workers exposure					
Outdoor					
Assumes activities are at ambient temperature (unless stated differently)			differently)		

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7.2.3. Control of wor	ker exposure: General exposures	(closed systems) - Process sampling -	Outdoor (PROC2)
PROC2	Use in closed, continuous	process with occasional controlled expos	ure (with sampling)
Amount used (or cont	ained in articles). frequency and durati	on of use/exposure	
Covers exposure up to	(hours/event):	> 4 h/day	
Conditions and masses		ione and health avaluation	
Conditions and measu	res related to personal protection, nyg	iene and nearth evaluation	
Without LEV	• • • • • • • • • • • • • •		
Handle substance with	In a closed system		
Sample via a closed loc	op or other system to avoid exposure		
training.	ant gloves (tested to EN374) in combine	ition with basic employee	
Other conditions affect	ting workers exposure		
Outdoor			
Assumes activities are	at ambient temperature (unless stated	differently)	
7.2.4 Control of wor	ker exposure: General exposures	(closed systems) + Batch process (PR	0C3)
PROC3	Use in closed batch proce	ss (synthesis or formulation) (with sampli	na)
			<u> </u>
	(hours (overt):		
covers exposure up to		> + 11/udy	
Conditions and measu	res related to personal protection, hyg	iene and health evaluation	
Without LEV			
Provide extract ventila	tion to points where emissions occur		
Handle substance with	in a closed system		
Wear chemically resista training.	ant gloves (tested to EN374) in combina	ition with 'basic' employee	
Other conditions affect	ting workers exposure		
Assumes activities are	at ambient temperature (unless stated	differently)	
Outdoor			
Provide closed or venti	lated sample points.		
7.2.5. Control of worl	ker exposure: Process sampling (PROC3)	
PROC3	Use in closed batch proce	ss (synthesis or formulation) (with sampli	ng)
Amount used (or cont	ained in articles) frequency and durati	on of use/exposure	
Covers exposure up to	(hours/event):	> 4 b/day	
Conditions and measu	res related to personal protection, hyg	iene and health evaluation	
Without LEV			
Provide closed or vent	lated sample points.		
Wear chemically resistant	ant gloves (tested to EN374) in combina	ition with 'basic' employee	
Other conditions affect	ting workers exposure		
Assumes activities are	at ambient temperature (unless stated	differently)	
Outdoor			
7.2.6. Control of worl		(open systems) (BBOC4)	
PROC4	Use in batch and other pro	(open systems) (FROC4)	knosure arises
Amount used (or cont	ained in articles), frequency and durati	on of use/exposure	
Covers use up to (time	s/day of use):	> 4 h/day	
Conditions and measu	res related to personal protection, hyg	iene and health evaluation	
With LEV			
Ensure operation is un	dertaken outdoors. , or: Provide a good	standard of general ventilation (not	
less than 3 to 5 air char Wear chemically resist	nges per hour) ant gloves (tested to FN374) in combina	tion with 'basic' employee	
training.			
Other conditions affect	ting workers exposure		
Assumes activities are	at ambient temperature (unless stated	differently)	
Indoor/Outdoor use.			
Transfer via enclosed li	nes		

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Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (ho	ours/event):	> 4 h/day	
Conditions and measures	s related to personal protection, hyg	iene and health evaluation	
Without LEV	,		
Handle substance within a	a closed system		
Ensure operation is under	, rtaken outdoors. , or: Provide a good	standard of general ventilation (not	
less than 3 to 5 air change Wear chemically resistant training.	es per hour) t gloves (tested to EN374) in combina	tion with 'basic' employee	
Other conditions affectin	g workers exposure		
Indoor			
Assumes activities are at a	ambient temperature (unless stated	differently)	
7.2.8. Control of worke	r exposure: Bulk transfers (PRC)C8b)	
PROC8b	Transfer of substance or p	preparation (charging/discharging) from	/to vessels/large containers at dedicated facilities
Amount used for contain	und in articles) frequency and durati		
	ours/event):	> 4 b/day	
	ours/event).		
Conditions and measures	s related to personal protection, hyg	iene and health evaluation	
Without LEV			
Ensure material transfers	are under containment or extract ve	ntilation	
Ensure operation is under	rtaken outdoors		
Wear chamically resistant	t gloves (tested to EN274) in combine	tion with (basis' amplexes	
training.	l gloves (lested to EN374) in combina	tion with basic employee	
Other conditions affectin	g workers exposure		
Outdoor			
Assumes activities are at a	ambient temperature or carried out a	at elevated temperature (> 20°C above	
ambient temperature)			
7.2.9. Control of worke	r exposure: Equipment cleaning	and maintenance (PROC8a)	
PROC8a	facilities	preparation (charging/discharging) from	to vessels/large containers at non dedicated
Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (he	ours/event):	>4 h/day	
Conditions and measures	s related to personal protection, hyg	iene and health evaluation	
Without LEV			
Drain down and flush syst	tem prior to equipment break-in or n	naintenance. Retain drain downs in	
sealed storage pending di Retain drain downs in sea	isposal or for subsequent recycle aled storage pending disposal or for si	ubsequent recycle	
Wear chemically resistant	gloves (tested to EN374) in combina	ition with specific activity	
, training.	<u> </u>		
Other conditions affectin	g workers exposure		
Assumes activities are at a	ambient temperature (unless stated	differently)	
Indoor/Outdoor use.			
Transfer via enclosed line	S		
7.2.10. Control of work	er exposure: Bulk product stora	age (PROC1, PROC2)	
PROC1	Use in closed process, no like	lihood of exposure (no sampling)	
PROC2	Use in closed, continuous pro	ocess with occasional controlled exposure	(with sampling)
Amount used (or contain	ed in articles), frequency and durati	on of use/exposure	
Covers exposure up to (he	ours/event):	> 4 h/day	
Conditions and measures	s related to personal protection, hvg	iene and health evaluation	
Store substance within a	closed system		
Ensure dedicated sample	points are provided		
Ensure operation is under	rtaken outdoors. , or: Provide a good	standard of general ventilation (not	
less than 3 to 5 air change	es per hour)		

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Other conditions affecting worker	s exposure		
Outdoor			
Assumes activities are at ambient t	emperature (unless stated differently	/)	
7.3. Exposure estimation	and reference to its sour	се	
7.3.1 Environmental release ar	ad exposure General measures (skin irritants) (FRC7_FSV0	C SPERC 7 12a v1)
Information for contributing expo	sure scenario		
No additional information.			
7.3.2. Worker exposure General exp	oosures (closed systems) (PROC1)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,01 mg/m ³	0,003	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,003	
.3.3. Worker exposure General exp	oosures (closed systems) - Process sar	mpling - Outdoor (PROC2)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	0,5 mg/m³	0,125	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,125	
7.3.4. Worker exposure General exp	oosures (closed systems) + Batch proc	cess (PROC3)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
systemic effects 1.3.5. Worker exposure Process san	noling (PROC3)		
Route of exposure and type of	Exposure estimate	RCR	Method
effects			
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,25	
7.3.6. Worker exposure General exp	oosures (open systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
.3.7. Worker exposure (closed syst	ems) (PROC16)	- Г	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
a facenne encela			

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7.3.8. Worker exposure Bulk tra	insfers (PROC8b)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,875		
7.3.9. Worker exposure Equipment	cleaning and maintenance (PROC8a)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,25		
7.3.10. Worker exposure Bulk produ	ct storage (PROC1, PROC2)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	0,35 mg/m ³	0,088	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,088		
7.4. Guidance to Downstrear	n User (DU) to evaluate wheth	her he works inside the b	oundaries set by the ES	
7.4.1. Environment				
Guidance - Environment	No exposure assessment	nent presented for the environment		
7.4.2. Health	·			
Guidance - Health Available hazard data do Management Measures a support the need for a DN national Occupational Exp Measures/Operational Co least equivalent levels.		not enable the derivation of a re based on qualitative risk ch EL to be established for othe losure Limits or other equivalenditions are adopted, then us	DNEL for dermal irritant effects. Risk naracterisation. Available hazard data do not r health effects. Users are advised to consider ent values. Where other Risk Management sers should ensure that risks are managed to at	

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8. 08: Use as binders and release agents - Professional

8.1. Title section

8. Use as binders and release agents - Professional

Association ref code: CONC.17.L	U.10				
Environment					
GEN-08	General measu	ires (skin irritants)	ERC8a, ERC8d, ESVOC SPERC 8.10b.v1		
Worker					
CS15	General expos	ures (closed systems)	PROC1		
CS15	General expose Outdoor	ures (closed systems) - Process samp	ling - PROC2		
CS15	General expos	ures (closed systems) + Batch proces	is PROC3		
CS16	General expos	ures (open systems)	PROC4		
CS30	Mixing operati	ons (open systems)	PROC6		
CS98	Roller, spreade	r, flow application	PROC10		
CS4	Dipping, imme	rsion and pouring	PROC13		
CS130	Article formati	on in mould	PROC14		
CS14	Bulk transfers		PROC8b		
CS39	Equipment clea	aning and maintenance	PROC8a		
Processes, tasks, activities covered Cov spri Pro		Covers the use as binders and rele spraying, brushing, and handling o Professional use	ers the use as binders and release agents including material transfers, mixing, application by ying, brushing, and handling of waste. essional use		
Assessment method The		The ECETOC TRA tool has been us	CETOC TRA tool has been used to estimate workplace exposures unless otherwise indicated		
8.2. Conditions of use	affecting expos	ure			
8.2.1. Control of environmer	tal exposure: Gener	al measures (skin irritants) (Ef	RC8a, ERC8d, ESVOC SPERC 8.10b.v1)		
ERC8a	Wide dispersive indo	or use of processing aids in open sys	tems		
ERC8d	Wide dispersive outdoor use of processing aids in open systems				
ESVOC SPERC 8.10b.v1	Use as binders and re	lease agents: Professional (SU22)			
	1				
Product (article) characteristics			Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa		
Product (article) characteristics Physical form of product	·	Solid at STP, liquid at eleva	ated operating temperature, vapour pressure < 0.5 kPa		
Product (article) characteristics Physical form of product Concentration of substance in p	roduct	Solid at STP, liquid at eleva	ated operating temperature, vapour pressure < 0.5 kPa		
Product (article) characteristics Physical form of product Concentration of substance in p Concentration of substance in p	roduct	Solid at STP, liquid at eleva <= 100 % (unless otherwise stated)	ated operating temperature, vapour pressure < 0.5 kPa		

Amount used, frequency and duration of use (or from service life) 18 t/yr Fraction of EU tonnage used in region: Covers daily exposures up to 8 hours (unless stated differently) Conditions and measures related to personal protection, hygiene and health evaluation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves General measures (skin irritants) (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during General measures (skin irritants) high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying. 8.2.2. Control of worker exposure: General exposures (closed systems) (PROC1) PROC1 Use in closed process, no likelihood of exposure (no sampling) Amount used (or contained in articles), frequency and duration of use/exposure Covers exposure up to (hours/event): > 4 h/dav

	, uu j		
Continuous process			
Conditions and measures related to personal protection, hygiene and health evaluation			
Handle substance within a closed system			
Use in closed process, no likelihood of exposure			

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Other conditions affecting wo	orkers exposure			
Indoor	· · · · · · · · · · · · · · · · · · ·			
Assumes activities are at amb	ent temperature (unless stated of	lifferently)		
8.2.3. Control of worker exp	oosure: General exposures	(closed systems) - Process sampling -	Outdoor (PROC2)	
PROC2	Use in closed, continuous	process with occasional controlled expos	ure (with sampling)	
Amount used (or contained in	articles). frequency and duration	on of use/exposure		
Covers exposure up to (hours)	event):	> 4 h/dav		
Continuous process	,			
Conditions and measures rela	ted to personal protection bygi	ene and health evaluation		
Without LEV				
Handle substance within a clo	sed system. Sample via a closed l	oop or other system to avoid exposure		
	, ,			
Wear chemically resistant glov training	ves (tested to EN374) in combina	tion with 'basic' employee		
Other conditions affecting wo	orkers exposure			
Outdoor				
Assumes activities are at amb	ent temperature (unless stated o	lifferently)	<u> </u>	
8.2.4. Control of worker ex	osure: General exposures	(closed systems) + Batch process (PR	OC3)	
PROC3	Use in closed batch proces	es (synthesis or formulation) (with sampling	ng)	
Amount used (or contained in	a articles) frequency and duration			
	(avent):			
	eventy.			
Conditions and measures rela	ted to personal protection, hygi	ene and health evaluation		
Without LEV	male aciate			
Wear chomically resistant dev	ample points.	tion with (basic' omployed		
training.	es (lested to ENS74) in combina	tion with basic employee		
Other conditions affecting wo	orkers exposure			
Outdoor				
Assumes activities are at ambi	ent temperature (unless stated of	lifferently)		
8.2.5. Control of worker ex	oosure: General exposures	(open systems) (PROC4)		
PROC4	Use in batch and other pro	cess (synthesis) where opportunity for ex	xposure arises	
Amount used (or contained in	articles), frequency and duration	on of use/exposure		
Covers exposure up to (hours)	/event):	> 4 h/day		
Conditions and moasuros rola	ted to personal protection, bygi	one and health evaluation		
Without LEV	ted to personal protection, mygi			
Provide extract ventilation to	material transfer points and othe	er openings		
Ensure operation is undertake	n outdoors or: Provide a good	standard of general ventilation (not		
less than 3 to 5 air changes pe	r hour)			
Wear chemically resistant glov	res (tested to EN374) in combina	tion with 'basic' employee		
Other conditions affecting wo	orkers exposure			
Indoor/Outdoor use.				
Assumes activities are at ambi	ent temperature (unless stated of	lifferently)		
826 Control of worker ex	oosure: Mixing operations (open systems) (PROC6)		
PROC6 Calendering operations				
Amount used (or contained in	articles) frequency and duration	on of use/exposure		
	(overt):			
Continuous process	eventy.			
Conditions process				
Conditions and measures rela	ted to personal protection, hygi	ene and health evaluation		
WITNOUT LEV	noral vontilation (not loss the size	to E air changes per hours		
Woor chomically resistant -les	ves (tested to EN1274) in combine	tion with specific activity		
training.		and with specific activity		

Other conditions affecting workers exposure Indicate Control of worker exposure: Roler application or brushing 28.27. Control of worker exposure: Roler application or brushing Amount used (or contained in article), frequency and duration of self-application (PROC10) Roler application or brushing Control of worker exposure is to fours/event; >4 h (day Conditions affecting workers exposure Conditions affecting workers exposure Without LFV Provide a good standard of general weinitation incontension taxes as a 5 air changes per hour) Wear chancilarly resistant gloves (rested to EN3/4) in combination with "basic" employee Conditions affecting workers exposure Other conditions affecting workers exposure Indicate Role (ROC13) PROC13 Transment of articles by dipping and pouring Role (ROC13) Control of worker exposures: 2 h (day Control of worker exposures: Control of a contained or period articles by dipping and pouring Role (ROC13) Role (ROC13) Control of worker exposures: 2 h (day Control of worker exposure: 2 h (day Control of a point exposure: 2 h (day Control of worker exposure: 2 h (day Provide a good standard of general weinitat	EC-No.: 231-722-6 CA	S-No.: 7704-34-9	REACH registration No: 01-2119487295-27
Indoor	Other conditions affecting workers exposure		
elevated temperature	Indoor		
82.27. Control of worker exposure: Roler, spreader, flow application (PROC10) PROC10 Roler application or brushing Amount used for contained in articles), frequency and duration of use/exposure	elevated temperature		
PROC10 Roller application or brushing Amount used (or contained in articles), frequency and duration of use/segoure Conditions and messures related to personal protoction, hygiene and health evaluation Without LEV Conditions and messures related to personal protoction, hygiene and health evaluation Without LEV Conditions affecting workers segoure Indicor Education 28.28. Control of worker exposure: Diver conditions affecting workers segoure Indicor Education 20.19 Control of worker exposure: > 4 h/day Conditions and messures related to personal protoction, hygiene and health evaluation Education PROC13 Treatment of anticles by disping and pouring Anount used (or contained in anticles), frequency and duration of use/ exposure Conditions and messures related to personal protoction, hygiene and health evaluation Without LEV Provide a good standard of general ventiliation (not less thin 3 to 5 air changes per hour) Wear chanically resisternt gloves (tested to EH374) in combination with "basic" employee Conditions affecting workers exposure Other conditions affecting workers exposure Conditions affecting workers exposure Conditions affecting workers exposure Conditions affecting workers exposure > 4 h/day	8.2.7. Control of worker exposure: Roller, sprea	der, flow application (PROC10)	
Amount used (or contained in articles), frequency and duration of use/exposure > 4 h/day Covers exposure up to (hours/event): > 4 h/day Covers exposure up to (hours/event): > 1 h/day Covers exposure up to (hours/event): > 1 h/day Without LV Provide a good standard of general ventilation (not test sthm 3 to 5 air changes per hour) Water chemically resident glowers (test do EN374) in combination with "base" employee Indoor	PROC10 Roller application of	or brushing	
Covers exposure up to (hours/event): > 4 h/day Conditions and measures related to personal protection, hygiene and health evaluation Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resident glows (tested to FN374) in combination with "basic" employee Indioar Genetic on affecting workers exposure Indioar Result of worker exposure: Dipping, Immersion and pouring (PROC13) FROC13 Treatment of articles by dipping and pouring Conditions affecting workers exposure: >4 h/day Conditions and measures related to personal protection, hygiene and health evaluation Without LEV View of biomody biomody of general ventilation (not less than 3 to 5 air changes per hour) Wear chemody and general ventilation (not less than 3 to 5 air changes per hour) Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemody and general ventilation (not less than 3 to 5 air changes per hour) Wear chemody to overker exposure Outdoor Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemody and general ventilation (not less than 3 to 5 air changes per hour) Other conditions aff	Amount used (or contained in articles), frequency an	d duration of use/exposure	
Conditions and measures related to personal protection, hygiene and health evaluation Without LEV Provide agood standard of general vertiliation (not less than 3 to 5 air changes per hour) War chemically resistant gloves (tested to EN374) in combination with 'baair' employee Training. Other conditions affecting workers exposure Indoor devasted temperature 82.8. Control of worker exposure: Dipping, Immersion and pouring (PROC13) PROC13 Treatment of articles, frequency and duration of use/exposure Construct of contained in articles, frequency and duration of use/exposure Construct of contained in articles, frequency and duration of use/exposure Construct Support >4 h /day Construct Support >5 air changes per hour! Wear chemically resistant gloves (tested to EN374) in combination of use/cepostre <td< td=""><td>Covers exposure up to (hours/event):</td><td>> 4 h/day</td><td></td></td<>	Covers exposure up to (hours/event):	> 4 h/day	
Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant glows (tested to EN374) in combination with Tasa? employee Infoor related temperature Related temperature 2.8. Control of worker exposure: Dipping, Immersion and pouring (PROC13) PROC13 Treatment of articles by dipping and pouring Conditions and ensures related to personal protection, hygiene and health evaluation Conditions and measures related to personal protection, hygiene and health evaluation Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant glows (tested to EN374) in combination with Tasa? employee Conditions and measures related to personal protection, hygiene and health evaluation Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant glows (tested to EN374) in combination with Tasa? employee Control of worker exposure: Article formation in mould (PROC14) Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant glows (tested to EN374) in combination or anticles by tableting, compression, extrusion, pelletisation Relation Annour used (or contained in articles), frequency and duration of use/exposure Conditions and measures related to personal	Conditions and measures related to personal protect	ion, hygiene and health evaluation	
Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant glows (textet to EN374) in combination with Toasi' employee Cher conditions affecting workers exposure Indoor elevated temperature 82.8. Control of worker exposure: Dipping, immersion and pouring (ROC13) PROC13 Treatment of articles by dipping and pouring Amount used (or contained in articles). frequency and duration of use/exposure Control of worker exposure up to (hours/went): > 41/day Control of worker exposure sets to personal protection, hygiene and health evaluation Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Without LV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Ware chemically resistant glows; (tested to EN374) in combination with "basic" employee Outdoor elevasted temperature Elevasted temperature 82.9. Control of worker exposure: Article formation in mould (PROC14) Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Without EV Production of preparations or articles by tabletting, compression, extrusion, pelletisation Amount used (or contained in articles), frequency and duration of use/exposure Covers exposure up to (hours/event): Cavers exposure up to (hours/event):	Without LEV		
Work chemically resistant gloves (tested to EN374) in combination with "basic" employee Indoor Indoor Indoor Betwarted temperature Indoor 8.2.8. Control of worker exposure: Dipping, Immersion and pouring (PROC13) Treatment of articles by dipping and pouring Amount used (or contained in articles), frequency and duration of use/exposure Conditions and measures related to personal protection, hygiene and health evaluation Without LEV > 4 h/day Conditions and measures related to personal protection, hygiene and health evaluation Without LEV Work relation (not less than 3 to 5 air changes per hour) Work rehension (Pasitian gloves (tested to EN374) in combination with "basic" employee Variance and the evaluation Without LEV Produce a good standard of general ventilation (not less than 3 to 5 air changes per hour) Woar chemicality residant gloves (tested to EN374) in combination with "basic" employee Indoor Training. Other conditions affecting workers exposure Other condition affecting workers exposure Outdoor Indoor Indoor Indoor 8.2.9. Control of worker exposures: > 4 h/day Control of worker exposures: Control of worker exposures: > 4 h/day Control of worker exposures: > 4 h/day	Provide a good standard of general ventilation (not lea	ss than 3 to 5 air changes per hour)	
Ltaining.	Wear chemically resistant gloves (tested to EN374) in	combination with 'basic' employee	
Other conditions affecting workers exposure Indoor elevated temperature 82.8. Control of worker exposure: Dipping, immersion and pouring (PROC13) PROC13 Treatment of anticles by dipping and pouring Covers exposure up to (hours/event): > 4 h/day Continuous process Continuous process Conditions and measures related to personal protection, hygiene and health evaluation Without EV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Wear chemically resistant gloves (tested to FN374) in combination with 'basic' employee Utations Control of worker exposure: Couldion Outdoor elevated temperature Elevated temperature 82.3. Control of worker exposure: Article formation in mould (PROC14) PROC14 PROC14 Production of preparations or articles by tabletting, compression, extrusion, pelletisation Amount used (or contained in article), frequency and duration of use/exposure Courter seposure up to (hours/event): Cover exposure up to (hours/event): > 4 h/day Courter seposure up to (hours/event): Cover exposure: S air changes per hour) Wear chemically resistant gloves (tested to FN374) in combination with 'basic' employee <td< td=""><td>training.</td><td></td><td></td></td<>	training.		
Indoor elevated temperature 82.8. Control of worker exposure: Dipping, immersion and pouring (PROC13) PROC13 Treatment of articles by dipping and pouring Amount used (or contained in articles), frequency and duration of use/exposure Continuous process Continuous process > 4 h/day Continuous process > 0 Onditions and measures related to personal protection, hyglene and health evaluation Without EV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Ware chemically resistant gloves (tested to EN374) in combination with 'basic' employee training. Outdoor elevated temperature Beaved etemperature PROC14 Production of preparations or articles by tabiletting, compression, extrusion, pelletisation Amount used (or contained and ricke), frequency and duration of use/exposure > 4 h/day Conditions and measures related to personal protection, hyglene and health evaluation Without LEV Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) Ware chemically resistant gloves (tested to EN374) in combination with 'basic' employee Conditions and relates), frequency and duration of use/exposure Covers exposure Covers exposure up to (hours/event): > 4 h/day Conditions anfecting	Other conditions affecting workers exposure		1
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Other conditions affecting workers exposure	Wear chemically resistant gloves (tested to EN374) in	combination with 'basic' employee	
	Other conditions affecting workers exposure		

lo.: 231-722-6	CAS-No.: 7704-34-9		REACH registration No: 01-211948729
Outdoor			
Assumes activities are at ambie	ent temperature (unless stated diffe	rently)	
2 11. Control of worker expo	sure: Equipment cleaning and ma	aintenance (PROC8a)	
PROC8a	Transfer of substance or preparatio	n (charging/discharging) from/to	vessels/large containers at non dedicated
Amount used (or contained in art	icles), frequency and duration of use/	'exposure	
Covers exposure up to (hours/eve	nt): >4 h/da	ау	
Conditions and measures related	to personal protection, hygiene and h	ealth evaluation	
Without LEV			
Drain down system prior to equip	ment break-in or maintenance		
Retain drain downs in sealed stora	ge pending disposal or for subsequent	t recycle	
Wear chemically resistant gloves (training.	tested to EN374) in combination with s	specific activity	
Other conditions affecting worke	rs exposure		
ndoor/Outdoor use.			
Assumes activities are at ambient	temperature (unless stated differently	()	
.3. Exposure estimation	n and reference to its sour	ce	
3.1. Environmental release a	nd exposure General measures (skin irritants) (ERC8a_ERC8d	ESVOC SPERC 8.10b.v1)
Information for contributing expo	osure scenario		
No additional information.			
3.2. Worker exposure General ex	posures (closed systems) (PROC1)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
nhalation - Long-term -	0,01 mg/m ³	0,003	Used ECETOC TRA model.
Sum RCR - Long-term -		0,003	
systemic effects	nocuros (closod sustems) - Process sa	mpling Outdoor (PPOC2)	
S.S. Worker exposure General ex	Fxnosure estimate		Method
effects			Include and a second se
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Systemic effects Sum RCR - Long-term -		0,25	· · · · · · · · · · · · · · · · · · ·
systemic effects	nosures (closed systems) + Batch proc		
Route of exposure and type of	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
effects Inhalation - Long-term -	1 mg/m ³	0,25	conclude safe use Used ECETOC TRA model.
systemic effects Sum RCR - Long-term -		0,25	
systemic effects			
3.5. Worker exposure General ex	posures (open systems) (PROC4)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
3.6. Worker exposure Mixing ope	erations (open systems) (PROC6)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	

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Sum RCR - Long-term - systemic effects		0,875	
8.3.7. Worker exposure Roller,	spreader, flow application (PRO	C10)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1,5 mg/m³	0,375	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,375	
8.3.8. Worker exposure Dipping, im	mersion and pouring (PROC13)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1,5 mg/m ³	0,375	Used ECETOC TRA model.
Sum RCR - Long-term -		0,375	
8.3.9. Worker exposure Article form	nation in mould (PROC14)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1,5 mg/m ³	0,375	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,375	
8.3.10. Worker exposure Bulk trans	fers (PROC8b)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,875	
8.3.11. Worker exposure Equipmen	t cleaning and maintenance (PROC8a	ı)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	1 mg/m ³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term -		0,25	
systemic effects			
8.4. Guidance to Downstrea	m User (DU) to evaluate whe	ther he works inside the	boundaries set by the ES
8.4.1. Environment			
Guidance - Environment	No exposure assessmen	t presented for the environme	ent
8.4.2. Health			
Guidance - Health	Available hazard data do Management Measures a support the need for a DI	not enable the derivation of are based on qualitative risk of NEL to be established for oth	a DNEL for dermal irritant effects. Risk characterisation. Available hazard data do not er health effects. Users are advised to consider

support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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9. 09: Use in Agrochemicals - Professional

9.1. Title section

9. Use in Agrochemicals - Professional

Association ref code: CONC.18.FU.11			
Environment			
GEN-09	General meas	ures (skin irritants)	ERC8a, ERC8d, ESVOC SPERC 8.11a.v1
Worker			
CS15	General expos	ures (closed systems)	PROC1
CS16	General expos	ures (open systems)	PROC4
CS14	Bulk transfers		PROC8b
CS10	Spraying		PROC11
CS4	Dipping, immersion and pouring		PROC13
CS39	Equipment cleaning and maintenance		PROC8a
Processes, tasks, activities covered		Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including equipment clean-downs and disposal. Professional use	
Assessment method		The ECETOC TRA tool has been used to estimate v	workplace exposures unless otherwise indicated

9.2. Conditions of use affecting exposure

9.2.1. Control of environmental exposure: General measures (skin irritants) (ERC8a, ERC8d, ESVOC SPERC 8.11a.v1)			
ERC8a	Wide dispersive indoor use of processing aids in open systems		
ERC8d	Wide dispersive outdoor use of processing aids in open systems		
ESVOC SPERC 8.11a.v1 Use in Agrochemicals: Professional (SU22)			

Product (article) characteristics			
Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa		
Concentration of substance in product	<= 100 %		
Concentration of substance in product	(unless otherwise stated)		
Vapour pressure	Liquid, vapour pressure 0.5 - 10 kPa at STP		

Amount used, frequency and duration of use (or from service life)					
Fraction of EU tonnage used in region:	595751,881 t/yr				
Covers daily exposures up to 8 hours (unless stated					
differently)					
Conditions and measures related to personal prote	ection, hygiene and health evaluation				
Avoid direct skin contact with product. Identify pote	ential areas for indirect skin contact. Wear gloves	General measures (skin irritants)			
(tested to EN374) if hand contact with substance lik	ely. Clean up contamination/spills as soon as they	,			
occur. Wash off any skin contamination immediatel	occur. Wash off any skin contamination immediately. Provide basic employee training to prevent /				
Difference exposures and to report any skin problems that may develop.					
high dispersion activities which are likely to lead to	substantial aerosol release e.g. spraving	General measures (skin initiants)			
high dispersion activities which are likely to lead to	nigh dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.				
9.2.2. Control of worker exposure: General exposures (closed systems) (PROC1)					
PROC1 Use in closed process, no likelihood of exposure (no sampling)					
Amount used (or contained in articles), frequency and duration of use/exposure					
Covers exposure up to (hours/event):	p to (hours/event): > 4 h/day				

Continuous process				
Conditions and measures related to personal protection, hygiene and health evaluation				
Handle substance within a closed system				
Use in closed process, no likelihood of exposure				
Other conditions affecting workers exposure				
Outdoor				
Assumes activities are at ambient temperature (unless stated of				

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9.2.3. Control of worker ex	posure: General exposures	(open systems) (PROC4)	
PROC4	Use in batch and other pro	ocess (synthesis) where opportunity for ex	kposure arises
Amount used (or contained in	n articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours,	/event):	>4 h/day	
Conditions and measures rela	ated to personal protection, hyp	iene and health evaluation	
Without LEV			
Ensure operation is undertake	en outdoors or: Provide a good	standard of general ventilation (not	
less than 3 to 5 air changes pe	er hour)		
Wear chemically resistant glow	ves (tested to EN374) in combina	ition with 'basic' employee	
Other conditions affecting we	orkers exposure		
Indoor/Outdoor use.	· · · · •		
Assumes activities are at amb	ient temperature (unless stated	differently)	
924 Control of worker ex	nosure: Bulk transfers (PR(0C8b)	
PROC8b	Transfer of substance or r	preparation (charging/discharging) from/to	vessels/large containers at dedicated facilities
Amount used (or contained in	n orticles) from one and durati		· · · · · · · · · · · · · · · · · · ·
	(event).		
covers exposure up to (nours,	, event).		
Conditions and measures rela	ated to personal protection, hyg	iene and health evaluation	
Without LEV			
Ensure operation is undertake	en outdoors. , or: Provide a good er hour)	standard of general ventilation (not	
Ensure material transfers are	under containment or extract ve	ntilation. Clear lines prior to de-	
coupling.	ups (tosted to EN274) in combine	tion with 'basis' amployee	
training.		ation with basic employee	
Other conditions affecting we	orkers exposure		
Outdoor			
Assumes activities are at amb	ient temperature (unless stated	differently)	
9.2.5. Control of worker ex	posure: Spraying (PROC11)		
PROC11	Non industrial spraying		
Amount used (or contained in	n articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours,	/event):	> 4 h/day	
Conditions and measures rela	ated to personal protection hyp	iene and health evaluation	
Without LEV			
Wear a respirator conforming	to EN140 with Type A/P2 filter	or better	
Wear chemically resistant glov	ves (tested to EN374) in combina	ation with 'basic' employee	
training.			
Other conditions affecting we	orkers exposure		
Indoor/Outdoor use.			
Assumes activities are at amb	ient temperature (unless stated	differently)	
9.2.6. Control of worker ex	posure: Dipping, immersion	and pouring (PROC13)	
PROC13	Treatment of articles by di	pping and pouring	
Amount used (or contained in	n articles), frequency and durati	on of use/exposure	
Covers exposure up to (hours,	/event):	>4 h/day	
Continuous process			
Conditions and measures rela	ated to personal protection, hyg	iene and health evaluation	
Without LEV			
Avoid carrying out activities in	Avoid carrying out activities involving exposure for more than 4 hours		
Wear chemically resistant glov	ves (tested to EN374) in combina	ation with 'basic' employee	
training.			
Other conditions affecting we	orkers exposure		
Indoor			
Assumes activities are at amb	ient temperature (unless stated	anterently)	

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9.2.7. Control of worker exposit	9.2.7. Control of worker exposure: Equipment cleaning and maintenance (PROC8a)				
PROC8a f	PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities				
Amount used (or contained in art	icles), frequency and duration of use/	exposure			
Covers exposure up to (hours/even	nt): > 1 h/da	av state and sta			
Conditions and massures related	to never all evotories busines and b	,			
Conditions and measures related	to personal protection, hygiene and h				
Without LEV					
Avoid carrying out activities involv	ing exposure for more than 1 hour				
Drain down system prior to equipr	nent break-in or maintenance				
Retain drain downs in sealed stora	ge pending disposal or for subsequent	recycle			
Wear chemically resistant gloves (training.	ested to EN374) in combination with s	specific activity			
Other conditions affecting worker	rs exposure				
Indoor/Outdoor use.					
Assumes activities are at ambient	temperature (unless stated differently))			
9.3. Exposure estimation	and reference to its sour	ce			
9.3.1. Environmental release a	nd exposure General measures (s	skin irritants) (ERC8a, ERC8d, ES	SVOC SPERC 8.11a.V1)		
Information for contributing expo	sure scenario				
No additional information.					
9.3.2. Worker exposure General exp	posures (closed systems) (PROC1)				
Route of exposure and type of effects	Exposure estimate	RCR	Method		
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use		
Inhalation - Long-term - systemic effects	0,01 mg/m ³	0,003	Used ECETOC TRA model.		
Sum RCR - Long-term -		0,003			
9.3.3. Worker exposure General exi	nosures (open systems) (PROC4)				
Boute of exposure and type of	Exposure estimate	RCR	Method		
effects					
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use		
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.		
Sum RCR - Long-term -		0,875			
systemic effects	ors (PPOC9b)				
Pouto of exposure and type of		PCP	Mathad		
effects	Exposure estimate		Wethou		
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use		
Inhalation - Long-term - systemic effects	3,5 mg/m ³	0,875	Used ECETOC TRA model.		
Sum RCR - Long-term -		0,875			
systemic effects	POC11)	I			
Boute of emposure spraying (P		PCP	Mathod		
effects	Exposure estimate		Method		
Dermal - Long-term - systemic effects	U mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use		
Inhalation - Long-term -	2 mg/m ³	0,5	Used ECETOC TRA model.		
Sum RCR - Long-term -		0,5			
9.3.6. Worker exposure Dipping, im	mersion and pouring (PROC13)				
Route of exposure and type of effects	Exposure estimate	RCR	Method		
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to		
Inhalation - Long-term - systemic effects	3 mg/m ³	0,75	Used ECETOC TRA model.		

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Sum RCR - Long-term - systemic effects		0,75		
9.3.7. Worker exposure Equipment cl	eaning and maintenance (PROC8a)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,25		
9.4. Guidance to Downstream	User (DU) to evaluate wheth	er he works inside the boundaries s	et by the ES	
9.4.1. Environment				
Guidance - Environment	No exposure assessment p	No exposure assessment presented for the environment		
9.4.2. Health				
Guidance - Health Available hazard data do not enable the derivation of a DNEL for dermal irritant eff Management Measures are based on qualitative risk characterisation. Available h support the need for a DNEL to be established for other health effects. Users are national Occupational Exposure Limits or other equivalent values. Where other R Measures/Operational Conditions are adopted, then users should ensure that risk least equivalent levels.		mal irritant effects. Risk n. Available hazard data do not s. Users are advised to consider here other Risk Management sure that risks are managed to at		

EXPOSUR SCENARIO SULPHUR

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10. 10: Road and construction applications

10.1. Title section

10.Road and construction applications - Professional

Association ref code: CONC.20.LU.15

Environment			
GEN-10	General measures (skin irritants)		ERC8d, ERC8f, ESVOC SPERC 8.15.v1
Worker			
CS14	Bulk transfers		PROC8b
CS7	Small package	filling	PROC9
CS98	Roller, spreader, flow application		PROC10
CS10	Spraying		PROC11
CS4	Dipping, immersion and pouring		PROC13
CS39	Equipment cleaning and maintenance		PROC8a
Processes, tasks, activities covered Application of surface coatings and binders in roa manual mastic and in the application of roofing a		and construction activities, including paving uses, d water-proofing membranes	
Assessment method The ECETOC TRA tool has been used to estima		The ECETOC TRA tool has been used to estimate w	vorkplace exposures unless otherwise indicated

10.2. Conditions of use affecting exposure

10.2.1. Control of environmental exposure: General measures (skin irritants) (ERC8d, ERC8f, ESVOC SPERC 8.15.v1)						
ERC8d	Wide dispersive outdoor use of processing aids in open systems					
ERC8f	Widespread use leading to inclusion into/onto article (outdoor)					
ESVOC SPERC 8.15.v1 Road and construction applications: Professional (SU22)						

Product (article) characteristics

Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa
Concentration of substance in product	<= 100 %
Concentration of substance in product	(unless otherwise stated)
Vapour pressure	Liquid, vapour pressure 0.5 - 10 kPa at STP

Amount used, frequency and duration of use (or from service life) Fraction of EU tonnage used in region: 4486,582 t/yr

un to Qha

Co difi	vers dail ferently)	y exposure	es up to	8 hoi	urs (unles	s stat	ed
-					-		-

Conditions and measures related to personal protection, hygiene and health evaluation Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves General measures (skin irritants) (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during General measures (skin irritants)

high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.		,	
10.2.2 Control of worker expediuse Bulk transfers (PBOC9b)			

10.2.2. Control of worker exposure. Durk transfers (1 NOCOD)						
PROC8b	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities					
Product (article) characteristics	;					
Concentration of substance in p	roduct	Limit the substance content in the product to 5 %				
Amount used (or contained in articles), frequency and duration of use/exposure						
Covers exposure up to (hours/e	vent):	> 4 h/day				
Continuous process						
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation				
Without LEV	Without LEV					
Limit the substance content in the product to 5 %						
Ensure material transfers are under containment or extract ventilation. Clear lines prior to de- coupling.						
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee						

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Other conditions affecting wor	kers exposure						
Outdoor							
elevated temperature							
10.2.3. Control of worker ex	10.2.3. Control of worker exposure: Small package filling (PROC9)						
PROC9	Transfer of substance or p	reparation into small containers (dedicate	ed filling line, including weighing)				
Product (article) characteristics	5						
Concentration of substance in p	product	Limit the substance content in the product	t to 5 %				
Amount used (or contained in	articles) frequency and durativ	an of use /experience					
	wont):						
Continuous process	ventj.	24 II/ uay					
Conditions and measures relate	ed to personal protection, hygi	ene and health evaluation	l .				
Without LEV	he availate F 0/						
Moor chomically resistant glave	rie product to 5 %	tion with (hasia' amplexed					
training.	s (lested to EN374) in combinat	ion with basic employee					
Other conditions affecting wor	kers exposure						
Outdoor							
elevated temperature							
10.2.4. Control of worker exp	posure: Roller, spreader, fl	ow application (PROC10)					
PROC10	Roller application or brushi	ng					
Product (article) characteristic		<u> </u>					
Concentration of substance in r	aroduct	Limit the substance content in the product	: to 5 %				
Amount used (or contained in	articles), frequency and duratio	on of use/exposure					
Covers exposure up to (hours/e	vent):	> 4 h/day					
Continuous process							
Conditions and measures related	ed to personal protection, hygi	ene and health evaluation					
Without LEV							
Limit the substance content in t	he product to 5 %						
training.	s (tested to EN374) in combinat	tion with 'basic' employee					
Other conditions affecting wor	kers exposure						
Outdoor							
elevated temperature							
10.2.5. Control of worker ex	oosure: Spraving (PROC11		I				
PROC11	Non industrial spraying						
Product (articla) characteristic							
	aroduct	Limit the substance content in the product	- to 5 %				
Amount used (or contained in	articles), frequency and duratio	on of use/exposure					
Covers exposure up to (hours/e	Covers exposure up to (hours/event):						
Continuous process							
Conditions and measures related to personal protection, hygiene and health evaluation							
Without LEV							
Limit the substance content in the product to 5 %							
Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training							
Other conditions affecting wor	training. Other conditions affecting workers exposure						
Outdoor							
elevated temperature	elevated temperature						
10.2.6. Control of worker exposure: Dipping immercian and neuring (PPOC12)							
PROC13	Treatment of articles by dir	poing and pouring					
Product (article) characteristics	5						

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Concentration of substance in proc	luct	Limit the substa	ince content in the product	to 5 %					
Amount used (or contained in arti	cles), frequency and duratic	on of use/exposu	re						
Covers exposure up to (hours/ever	Covers exposure up to (hours/event): > 4 h/day								
Continuous process									
Conditions and measures related t									
Without LEV									
Limit the substance content in the	Limit the substance content in the product to $\Gamma(t)$								
Wear chemically resistant gloves (t	product to 5 %	tion with (basis' o	mployee						
training.	ested to EN374) in combinat	JOH WITH DASIC E	прюуее						
Other conditions affecting worker	s exposure								
Outdoor									
elevated temperature									
10.2.7 Control of worker experi	suro: Equipmont cloanin	a and mainton:							
PROC8a	ransfer of substance or n	reparation (char	aina/discharging) from/to	vessels/laro	e containers at non dedicated				
f	acilities								
Amount used (or contained in arti	cles), frequency and duration	on of use/exposu	re						
Covers exposure up to (hours/ever	1t):	>1 h/day							
Conditions and measures related	o personal protection, hygi	ene and health e	valuation						
Without LEV									
Limit the substance content in the	product to 5 %								
Drain down system prior to equipm	nent break-in or maintenanc	e							
Retain drain downs in sealed stora	ge pending disposal or for su	bsequent recycle	2						
Wear chemically resistant gloves (t	ested to EN374) in combinat	tion with specific	activity						
training.									
Other conditions affecting worker	s exposure								
Indoor/Outdoor use.									
Assumes activities are at ambient t	emperature (unless stated d	lifferently)							
10.3. Exposure estimatio	n and reference to	its source							
10.3.1 Environmental release a	and exposure General m	easures (skin i	rritants) (FRC8d, FRC8f	ESVOC S	PERC 8 15 v1)				
Information for contributing expo	sure scenario			,					
No additional information.									
10.3.2. Worker exposure Bulk trans	fers (PROC8b)								
Boute of exposure and type of	Exposure estimate		RCR		Method				
effects			0						
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	/	0		Qualitative approach used to conclude safe use				
Inhalation - Long-term -	1 mg/m³		0,25		Used ECETOC TRA model.				
Sum RCR - Long-term -			0,25						
systemic effects									
10.3.3. Worker exposure Small pack	age filling (PROC9)		D.0D						
Route of exposure and type of effects	Exposure estimate		RCR		Method				
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	1	0		Qualitative approach used to				
Inhalation - Long-term -	1 mg/m ³ 0,25 Used ECETOC TRA model.								
systemic effects	0.25								
systemic effects	Sum RCR - Long-term - 0,25								
10.3.4. Worker exposure Roller, spr	eader, flow application (PRC)C10)							
Route of exposure and type of effects	Exposure estimate		RCR		Method				
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	/	0		Qualitative approach used to conclude safe use				
Inhalation - Long-term -	1 mg/m³		0,25		Used ECETOC TRA model.				
systemic effects Sum RCR - Long-term -			0,25						
systemic effects									

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10.3.5. Worker exposure Spray	ing (PROC11)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	2,8 mg/m ³	0,7	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,7		
10.3.6. Worker exposure Dipping, in	nmersion and pouring (PROC13)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,25		
10.3.7. Worker exposure Equipment	t cleaning and maintenance (PROC8a)			
Route of exposure and type of effects	Exposure estimate	RCR	Method	
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use	
Inhalation - Long-term - systemic effects	1 mg/m ³	0,25	Used ECETOC TRA model.	
Sum RCR - Long-term - systemic effects		0,25		
10.4. Guidance to Downstrea	am User (DU) to evaluate whe	ther he works inside th	e boundaries set by the ES	
10.4.1. Environment				
Guidance - Environment	No exposure assessment	No exposure assessment presented for the environment		
10.4.2. Health				
Guidance - Health Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Risk Management Measures are based on qualitative risk characterisation. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.				

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11. 11: Explosives manufacture & use

11.1. Title section

11.Explosives manufacture & use - Professional

Association ref code: CONC.38.	_U.18				
Environment					
GEN-11	General meas	ures (ski	n irritants)	ERC8e, (ERC)	
Worker					
CS15	General expos	ures (clo	osed systems)	PROC1	
CS15	General expos	ures (clo	sed systems) + Batch process	PROC3	
CS30	Mixing operat	ions (op	en systems)	PROC5	
CS14	Bulk transfers			PROC8b	
CS39	Equipment cle	aning ar	nd maintenance	PROC8a	
Processes, tasks, activities covered Co ma Processes activities covered			vers exposures arising from the manufacture and use of slurry explosives (including aterials transfer, mixing and charging) and equipment cleaning ofessional use		
Assessment method		THEE	CETOC TRA LOOI has been used to estimate w	orkplace exposures unless otherwise indicated	
11.2. Conditions of use	e affecting expo	sure			
11.2.1. Control of environme	ntal exposure: Gen	eral me	easures (skin irritants) (ERC8e, (ERC))		
ERC8e	Widespread use of re	eactive p	rocessing aid (no inclusion into or onto artic	le, outdoor)	
(ERC)	Release fractions def	ined by	ERC		
Product (article) characteristics					
Physical form of product			Solid at STP, liquid at elevated operating te	emperature, vapour pressure < 0.5 kPa	
Concentration of substance in p	roduct		<= 100 %		
Concentration of substance in product			(unless otherwise stated)		
Vapour pressure			vapour pressure < 0.5 kPa at STP		
Amount used, frequency and d	uration of use (or fron	n service	life)		
Fraction of EU tonnage used in	region:		306 t/yr		
Covers daily exposures up to 8 l differently)	nours (unless stated				
Conditions and measures relate	ed to personal protect	ion, hygi	ene and health evaluation		
Avoid direct skin contact with p (tested to EN374) if hand conta occur. Wash off any skin contan minimise exposures and to repo	roduct. Identify potent ct with substance likely nination immediately. I ort any skin problems t	ial areas v. Clean u Provide b hat may	for indirect skin contact. Wear gloves up contamination/spills as soon as they basic employee training to prevent / develop.	General measures (skin irritants)	
11.2.2. Control of worker exp	osure: General exp	osures	(closed systems) (PROC1)	·	
PROC1	Use in closed proc	ess, no	likelihood of exposure (no sampling)		
Amount used (or contained in	articles), frequency an	d duratio	on of use/exposure		
Continuous process					
Covers exposure up to (hours/e	vent):		>4 h/day		
Conditions and measures relate	ed to personal protect	ion, hygi	ene and health evaluation		
Handle substance within a closed system					
No other specific measures identified					
Other conditions affecting wor	kers exposure				
Outdoor					
Assumes activities are at ambient temperature (unless stated differently)					
11.2.3. Control of worker exposure: General exposures (closed systems) + Batch process (PROC3)					
PROC3	Use in closed batc	h proces	ss (synthesis or formulation) (with sampli	ng)	
Amount used (or contained in	articles), frequency an	d duratio	on of use/exposure		
Covers exposure up to (hours/event): >4 h/day					

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Conditions and measures relate	ed to personal protection, hygie	ne and health evaluation						
Without LEV								
Provide closed or ventilated san	nple points.							
Handle substance within a closed system								
Wear chemically resistant glove training.	Wear chemically resistant gloves (tested to EN374) in combination with 'basic' employee training.							
Other conditions affecting wor	kers exposure							
Assumes activities are at ambie	nt temperature (unless stated di	ifferently)						
Outdoor								
Provide closed or ventilated san	nple points.							
11.2.4. Control of worker exp	osure: Mixing operations (open systems) (PROC5)						
PROC5	Mixing or blending in batch contact)	processes for formulation of preparation	s and articles (multistage and/or significant					
Amount used (or contained in a	articles), frequency and duration	n of use/exposure						
Covers exposure up to (hours/e	vent):	>4 h/day						
Conditions and measures relate	ed to personal protection, hygie	ne and health evaluation						
Without LEV								
Ensure operation is undertaken	outdoors., or: Provide a good s	tandard of general ventilation (not						
less than 3 to 5 air changes per	hour)	ing with the sight energies of						
training.	s (tested to EN374) in combinati	ion with 'basic' employee						
Other conditions affecting work	kers exposure							
Indoor								
Assumes activities are at ambie	nt temperature (unless stated di	ifferently)						
11.2.5. Control of worker exp	oosure: Bulk transfers (PRC	0C8b)						
PROC8b	Transfer of substance or pre	eparation (charging/discharging) from/to	vessels/large containers at dedicated facilities					
Product (articlo) characteristics	· ·		·					
Concentration of substance in n	roduct	Limit the substance content in the product	to 5 %					
concentration of substance in p		Limit the substance content in the product						
Amount used (or contained in a	articles), frequency and duration	n of use/exposure						
Covers exposure up to (hours/e	vent):	> 4 h/day						
Continuous process								
Conditions and measures relate	d to personal protection, hygie	ne and health evaluation						
Without LEV								
Ensure operation is undertaken	outdoors. , or: Provide a good s	tandard of general ventilation (not						
Ensure material transfers are ur	ider containment or extract ven	tilation. Clear lines prior to de-						
coupling.	c (tasted to EN274) in combinati	ion with thering ampleurs						
training.	s (lested to EN374) in combinati	ion with basic employee						
Other conditions affecting wor	kers exposure							
Outdoor								
elevated temperature								
11.2.6. Control of worker exp	oosure: Equipment cleaning	and maintenance (PROC8a)						
PROC8a	Transfer of substance or pre facilities	eparation (charging/discharging) from/to	vessels/large containers at non dedicated					
Amount used (or contained in a	articles), frequency and duratio	n of use/exposure						
Covers exposure up to (hours/e	vent):	> 1 h/day						
Conditions and measures relate	d to porconal protection busic	no and health ovaluation						
	a to personal protection, nygle	הב מות הפמנה פעמונוסה						
Ensure operation is undertaken	outdoors or: Provide a good a	tandard of general vontilation (not						
less than 3 to 5 air changes per	hour)	tanuaru or general ventilation (not						
Drain down system prior to equ	ipment break-in or maintenance	2						
Retain drain downs in sealed sto	orage pending disposal or for sul	bsequent recycle						
Wear chemically resistant glove	s (tested to EN374) in combinati	ion with specific activity						
u di i ilig.								

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Other conditions affecting worker	s exposure		
Indoor/Outdoor use.			
Assumes activities are at ambient	emperature (unless stated differently	y)	
11.3 Exposure estimatio	n and reference to its sou	irce	
11.3.1. Environmental release a	and exposure General measures	s (skin irritants) (ERC8e, (ERC))	
No additional information	sure scenario		
11.3.2. Worker exposure General ex	(posures (closed systems) (PROCI)	DCD.	Mashad
effects	Exposure estimate	RCK	Wethod
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0 003	Qualitative approach used to conclude safe use
systemic effects	0,01 mg/m²	0,003	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,003	
11.3.3. Worker exposure General exposure General exposure General exposure General exposure General exposure of the second exposure of th	<pre>kposures (closed systems) + Batch pre</pre>	ocess (PROC3)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term - systemic effects	1 mg/m³	0,25	Used ECETOC TRA model.
Sum RCR - Long-term - systemic effects		0,25	
11.3.4. Worker exposure Mixing op	erations (open systems) (PROC5)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic effects	0 mg/kg bodyweight/day	0	Qualitative approach used to conclude safe use
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
11.3.5. Worker exposure Bulk trans	fers (PROC8b)		
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
11.3.6. Worker exposure Equipmen	t cleaning and maintenance (PROC8a	a)	
Route of exposure and type of effects	Exposure estimate	RCR	Method
Dermal - Long-term - systemic	0 mg/kg bodyweight/day	0	Qualitative approach used to
Inhalation - Long-term -	3,5 mg/m ³	0,875	Used ECETOC TRA model.
Sum RCR - Long-term -		0,875	
11.4. Guidance to Downstre	am User (DU) to evaluate wh	ether he works inside the ho	undaries set by the FS
11.4.1. Environment		ether ne works inside the be	
Guidance - Environment	No exposure assessmen	t presented for the environment	
11 4 2 Health			
Guidance Hoalth	Available bezord date de	not enable the derivation of a DM	NEL for dermal irritant affects. Biok
	Available hazard data do Management Measures a support the need for a DI national Occupational Ex Measures/Operational C least equivalent levels.	NEC enable the derivation of a DI are based on qualitative risk char NEL to be established for other h (posure Limits or other equivalent onditions are adopted, then users	acterisation. Available hazard data do not ealth effects. Users are advised to consider t values. Where other Risk Management s should ensure that risks are managed to at

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12. 12: Use in Agrochemicals - Consumer

12.1. Title section

12.Use in Agrochemicals - Consumer

Association ref code: CONC.19.FU.11

Consumer						
GEN-12	General measures (ski	n irritants)		ERC8a, ERC8d, ESVOC SPERC 8.11b.v1		
PC12	Fertilisers			PC12		
PC22	Lawn and garden prep	arations, includi	ng fertilizers	PC22		
PC27	Plant protection produ	icts		PC27		
Processes, tasks, activities covered Covers the consumer Use as an agrochemic equipment clean-dow Consumer use		use in agrochen cal excipient for a vns and disposal	use in agrochemicals in liquid and solid forms. al excipient for application by manual or machine spraying, smokes and fogging; including ns and disposal.			
Assessment method	See Section 3.					
12.2. Conditions of use	e affecting exposure					
12.2.1. Control of consumer	exposure: General measu	res (skin irrita	nts) (ERC8a, ERC8d, ES	VOC SPERC 8.11b.v1)		
ERC8a	Wide dispersive indoor use o	f processing aids	in open systems			
ERC8d	Wide dispersive outdoor use	of processing aid	ds in open systems			
ESVOC SPERC 8.11b.v1	Use in Agrochemicals: Consu	mer (SU21)				
Product (article) characteristics						
Physical form of product		Solid at STP, lie	quid at elevated operating te	emperature, vapour pressure < 0.5 kPa		
Concentration of substance in p	roduct	<= 100 %				
Concentration of substance in p	roduct	(unless otherw	vise stated)			
Vapour pressure		Liquid, vapour	pressure 0.5 - 10 kPa at STP			
Amount used (or contained in a	articles). frequency and duration	on of use/expos	ure			
(unless otherwise stated),For ea	(unless otherwise stated),For each use event, covers use amounts up to 37500					
(g): Covers skin contact area up to (cm2): 6600						
Unless otherwise stated: ,Cover		4				
Covers exposure up to (hours/event):			8			
Other conditions affecting cons	sumer exposure					
Avoid contact with skin, eyes ar						
Covers use at ambient temperatures.						
Covers use in room size of (m3):		20				
Covers use under typical house						
12.2.2. Control of consumer	exposure: Fertilisers (PC1	2)				
PC12	Fertilizers					
Product (article) characteristics	;					
Physical form of product		Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa				
Concentration of substance in p	roduct	<= 100 %				
Concentration of substance in p	roduct	(unless otherw	vise stated)			
Vapour pressure		= hPa				
Other product characteristics		Substance is complex UVCB, Predominantly hydrophobic.				
Amount used (or contained in a	articles), frequency and duration	on of use/expos	ure			
For each use event, covers use a	amounts up to (g):	<= 2500 g				
Covers use up to (days/year):		<= 1 days/yr				
Covers use up to (times/day of t	1					
Other conditions affecting cons	sumer exposure	1				
Outdoor use.						
Covers concentrations up to (% stated)):(unless otherwise	90 %				

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Covers skin contact area up to (cm2):		857,5				
For each use event, assumes swallowed amout	int of (g):	0,3),3			
12.2.3. Control of consumer exposure: L	awn and garde.	n preparations, inc	luding fertilizers (PC22)			
PC22 Lawn and garden preparations, including fertilizers						
Product (article) characteristics						
Physical form of product	Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa					
Concentration of substance in product		<= 100 %				
Concentration of substance in product		(unless otherwise stated)				
Vapour pressure			= hPa			
Other product characteristics		Substance is complex UVCB, Predominantly hydrophobic.				
Other conditions affecting consumer exposure						
Products containing Sulfur in high percentage acidification of soil, to treat certain plant disc potatoes) and as worm- deterrent (http://www.progreen.co.uk/index.php?c=61 products are provided as prill (pellets) in bags	n					
Outdoor use.						
Covers concentrations up to (%):(unless other	90 %	90 %				
Covers use up to (days/year):						
12.2.4. Control of consumer exposure: Plant protection products (PC27)						
POZI Plant protection products						
Product (article) characteristics						
Physical form of product		Solid at STP, liquid at elevated operating temperature, vapour pressure < 0.5 kPa				
Concentration of substance in product		<= 100 %				
Concentration of substance in product		(unless otherwise stated)				
Other product characteristics		Substance is complex UVCB, Predominantly hydrophobic.				
Amount used (or contained in articles), frequency and duration of use/exposure						
For each use event, covers use amounts up to (g):		<= 2500 g				
Covers use up to (days/year):		<= 1 days/yr	= 1 days/yr			
Covers use up to (times/day of use):		1				
Other conditions affecting consumer exposure						
Outdoor use.						
Covers concentrations up to (%):(unless otherwise		90 %				
stated)		1	1			
Covers skin contact area up to (cm2):		857,5				
For each use event, assumes swallowed amount of (g):		0,3	0,3			
12.3. Exposure estimation and reference to its source						
12.3.1. Consumer exposure General measures (skin irritants) (ERC8a, ERC8d, ESVOC SPERC 8.11b.v1)						
Information for contributing exposure scenario						
12.5.2. Consumer exposure Fertilisers (PC12)						
Route of exposure and type of effects	Exposure e	estimate	RCR	Method		
Oral - Long-term - systemic effects	0,08 mg/kg	g bodyweight/day	0,16	Used ECETOC TRA model.		
Dermal - Long-term - systemic effects	0,39 mg/kg	g bodyweight/day	0,78	Used ECETOC TRA model.		
Sum KCK - Long-term - systemic effects U,94						
12.3.3. Consumer exposure Lawn and garden preparations, including fertilizers (PC22)						
Route of exposure and type of effects	Exposure e	sunate	KCK	IVIETIOU		
Oral - Long-term - systemic effects	0,08 mg/kg	g bodyweight/day	0,16	Used ECETOC TRA model.		

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Dermal - Long-term - systemic effects	0,39 mg/kg bodyweight/day	0,78	Used ECETOC TRA model.				
Sum RCR - Long-term - systemic effects		0,94					
12.3.4. Consumer exposure Plant protection products (PC27)							
Route of exposure and type of effects	Exposure estimate	RCR	Method				
Oral - Long-term - systemic effects	0,08 mg/kg bodyweight/day	0,16	Used ECETOC TRA model.				
Dermal - Long-term - systemic effects	0,39 mg/kg bodyweight/day	0,78	Used ECETOC TRA model.				
Sum RCR - Long-term - systemic effects		0,94					
12.4. Guidance to Downstream User (DU) to evaluate whether he works inside the boundaries set by the ES							
12.4.1. Environment							
Guidance - Environment	No exposure assessment presented for the environment						
12.4.2. Health							
Guidance - Health	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.						

End of document