ABSCHNITT 1. Bezeichnung des Stoffs bzw. des Gemischs und des Unternehmens

1.1. Produktidentifikator

* Chemischer Name : Calciumchlorid , Lösung (10-40%).

Art der Produktes : Reiner Produkt im Lösung .

Reach Registrierungnummer : 01-2119494219-28

1.2. Relevante identifizierte Verwendungen des Stoffs oder Gemischs und Verwendungen von denen abgeraten wird

Identifizierte(n) Verwendung(en) : Siehe Tabelle auf der ersten Seite des Anhangs.

* Verwendung(en) von denen abgeraten wird : Dieses Produkt ist nicht für irgendeiner anderen industriellen, gewerblichen Verwendung oder Verwendung durch den Verbraucher als in der Tabelle auf der ersten Seite des Anhangs empfohlen.
Nicht für die Verwendung in Dekorationsgegenständen, in Scherzspielen und in Spielen (gemäß Anhang XVII der Verordnung (EG) Nr. 1907/2006) (3. Flüssige Stoffe und Zubereitungen, welche die Kriterien für eine der folgenden in Anhang I der Verordnung (EG) Nr. 1272/20083 aufgeführten Gefahrenklassen oder -kategorien erfüllen: (a) Gefahrenklassen 2.1-2.4, 2.6, 2.7, 2.8 Typen A und B, 2.9, 2.10, 2.12, 2.13 Kategorien 1 und 2, 2.14 Kategorien 1 und 2, 2.15 Typen A-F, (b) Gefahrenklassen 3.1 - 3.6, 3.7 infolge Beeinträchtigung der Sexualfunktion und Fruchtbarkeit sowie der Entwicklung, 3.8 ausgenommen narkotisierende Wirkungen, 3.9 und 3.10, (c) Gefahrenklasse 4.1, (d) Gefahrenklasse 5.1).

1.3. Einzelheiten zum Lieferanten, der das Sicherheitsdatenblatt bereitstellt

Firmenidentifizierung : BRENNTAG N.V. - Nijverheidslaan 38 - BE-8540 DEERLIJK
TEL: +32(0)56/77.69.44 - FAX: +32(0)56/77.57.11
E-MAIL: info@brenntag.be - Website: www.brenntag.be

BRENNTAG Nederland B.V. - Donker Duyvisweg 44 - NL-3316 BM DORDRECHT
TEL: +31(0)78/65.44.944 - FAX: +31(0)78/65.44.919
E-MAIL: info@brenntag.nl - Website: www.brenntag.nl

1.4. Notrufnummer

Notrufnummer : Belgien : Antigifzentrum - Brüssel
TEL: +32(0)70/245.245

Die Niederlande : National Vergiftungen Information Zentrum - Bilthoven
TEL: +31(0)30/274.88.88 (Ausschließlich zum Zwecke der Unterrichtung medizinisches Personal bei akuten Intoxikationen)

ABSCHNITT 2. Mögliche Gefahren

2.1. Einstufung des Stoffs oder Gemischs

Einstufung gemäß der Verordnung (EG) Nr. 1272/2008

Augenreizung - Kategorie 2 - Achtung (Eye Irrit. 2; H319)

2.2. Kennzeichnungselemente

Kennzeichnung gemäß der Verordnung (EG) Nr. 1272/2008

• Gefährliches Bestandteil(en) : Calciumchlorid wasserfrei

• Gefahren Piktogramm(e)

• Signalwort : Achtung

• Gefahrenhinweise : H319 - Verursacht schwere Augenreizung.

ABSCHNITT 2. Mögliche Gefahren (Fortsetzung)

• Sicherheitshinweise

- Prävention : P264 - Nach Gebrauch Haut gründlich waschen. P280 - Schutzhandschuhe/ Schutzkleidung/Augenschutz/Gesichtsschutz tragen.
- Reaktion : P305+P351+P338 - BEI KONTAKT MIT DEN AUGEN : Einige Minuten lang behutsam mit Wasser ausspülen. Vorhandene Kontaktlinsen nach Möglichkeit entfernen. Weiter spülen. P337+P313 - Bei anhaltender Augenreizung: Ärztlichen Rat einholen/ärztliche Hilfe hinzuziehen.

2.3. Sonstige Gefahren

Physikalishe/chemische Gefahren : Ätzend für Metalle.

Gefahren für die Gesundheid : Ein Gesundheits gefährliche Konzentration in der Luft wird beim Verdampfen von diese Substanz bei ca. 20°C nicht oder sehr langsam erreicht; durch Sprühen viel schneller.

Gefahren für die Umwelt : Keine bedeutende Gefahr. Dieses Produkt ist kein Substance oder enthält keine PBT oder vPvB (gemäß Anhang XIII).

Gefahren für die Sicherheit : Es liegen keine Angaben vor.

ABSCHNITT 3. Zusammensetzung/Angaben zu Bestandteilen

3.1. Stoffe

Name Komponent(en)		Gew. %	CAS nr	EINECS nr	Index nr	Reach nr	EINSTUFUNG
Calciumchlorid wasserfrei	:	10 -40 %	10043-52-4	233-140-8	017-013-00-2	01-2119494219-28	Eye Irrit. 2; H319

*

Der vollständige Text von die (EU)H-Hinweise is im Abschnitt 16.

ABSCHNITT 4. Erste-Hilfe-Maßnahmen

4.1. Beschreibung der Erste-Hilfe-Maßnahmen

Allgemein : Beim Zweifel oder andauernden Symptomen, immer Arzt konsultieren. Bewußtlosen Menschen nichts eingeben.

Erste Hilfe

- Einatmen : Frische Luft zuführen.
  Opfer zur Ruhe kommen lassen, in halb-sitzender Lage bringen.
  Bei unregelmässiger Atmung oder beim Atemstillstand, künstlich beatmen.
  Beraten Sie einen Doktor wenn die Symptome durchhalten.
- Hautkontakt : Verunreinigte Kleidung ablegen.
  Haut sofort mit viel Wasser ausspülen. (ev. Duschen).
  Artz konsultieren, wenn sich negative Reaktionen oder Reizungen einstellen.
- Augenkontakt : Sofort gründlich und länger (mindestens 15 Min.) mit vielem Wasser ausspülen. Kontaktlinsen ausnehmen.
  Augenarzt aufsuchen, wenn sich negative Reaktionen oder Reizungen der Augen einstellen.
- Verschlucken : KEIN ERBRECHEN HERBEIFÜHREN. Der Mund spülen mit Wasser.
  Slachtopfer viel Wasser trinken lassen.
  Beraten Sie einen Doktor wenn die Symptome durchhalten.

4.2. Wichtigste akute oder verzögert auftretende Symptome und Wirkungen

Siehe Abschnitt 11.

4.3. Hinweise auf ärztliche Soforthilfe und Spezialbehandlung

Für fachliche Beratung Ärzte sollten sich an die NVCI oder die belgische Antigiftzentrum.

ABSCHNITT 5. Maßnahmen zur Brandbekämpfung

5.1. Löschmittel

Löschmittel

- Geeignete : Löschpulver , Schaum , Kohlenstoffdioxid (CO_2) , Sprühwasser .
- Nicht geeignete : Keine bekannt .

5.2. Besondere vom Stoff oder Gemisch ausgehende Gefahren

Spezielle Expositionsgefahren : Bei Erhitzung können reizende Dämpfe freikommen.

5.3. Hinweise für die Brandbekämpfung

Schutzende Ausrüstung : In nächster Nähe des Feuers geschlossenes Atemschutzgerät verwenden und angemessene Schutzkleidung tragen.

Besondere Massnahmen : Zur Kühlung in der Nähe befindlichen Geräts Wassersprühstrahl oder -nebel verwenden. Es ist zu vermeiden, daß zur Brandlöschung verwendetes Wasser in die Umwelt gelangt.

ABSCHNITT 6. Maßnahmen bei unbeabsichtigter Freisetzung

6.1. Personenbezogene Vorsichtsmaßnahmen, Schutzausrüstungen und in Notfällen anzuwendende Verfahren

Personenbezogene Vorsichtsmaßnahmen : Sofort die Personen am angesteckten Ort räumen und gut lüften.
Einatmung der Dämpfe und Berührung mit den Augen und der Haut vermeiden.
Empfohlene Personenschutzausrüstung tragen. (Siehe Abschnitt 8)

6.2. Umweltschutzmaßnahmen

Umweltschutzmaßnahmen : Wenn möglich Undichtheiten beseitigen.
Das gekleckerte Produkt soviel wie möglich mit inertem Material eindeichen.
Eindringen das Produkt in Kanalisation, öffentlichen Gewässer oder dem Boden verhindern.
Falls das Produkt in die Kanalisation oder öffentliche Gewässer gelangt, sind die Behörden zu benachrichtigen.

6.3. Methoden und Material für Rückhaltung nd Reinigung

Reinigungsmethode : Die Leckflüssigkeit auffangen in abgeschlossenen Fässern.
Das gekleckerte Produkt soviel wie möglich mit inertem Material eindeichen.
Rückstände mit vielen Wasser wegspülen.

6.4. Verweis auf andere Abschnitte

Für persönliche Schutzmittel, siehe Abschnitt 8.
Für Behandlung das Abfallprodukt, siehe Abschnitt 13.

ABSCHNITT 7. Handhabung und Lagerung

7.1. Schutzsmaßnahmen zur sicheren Handhabung

Handhabung : Einatmung der Dämpfe und Berührung mit den Augen und der Haut vermeiden.
Empfohlene Personenschutzausrüstung tragen. (Siehe Abschnitt 8)
Waschen Sie Ihre Hände, vorher und nachher, das Sie mit dem Produkt bearbeitet haben.
Bei der Arbeit nicht essen, trinken oder rauchen.
Notvorrichtungen für Augenspülungen und Duschen für Erste-Hilfe- Maßnahmen bei der Behandlung von Erfrierungsverletzungen sollten dort, wo eine potentielle Exposition eintreten kann, in unmittelbarer Nähe verfügbar sein.

7.2. Bedingungen zur sicheren Lagerung unter Berücksichtigung von Unverträglichkeiten

Lagerung : Nur im gut abgeschlossenen Originalbehälter an einem kühlen und gut gelüfteten Ort aufbewahren.
Alle gefährlichen Produkte müßten auf einen Leckbehälter gesetzt werden oder

ABSCHNITT 7. Handhabung und Lagerung (Fortsetzung)

eingetonnt werden. Fernhalten von : Oxidationsmittel , Reduktionsmittel .

Geeignetes Verpakkungsmaterial	: Synthetische stoffen .
Nicht geeignetes Verpakkungsmaterial	: Rostfreier Stahl , Metalle .

7.3. Spezifische Endanwendungen

Für den identifizierten Verwendungen, siehe Unterabschnitt 1.2 und/oder Expositionsszenarien.

ABSCHNITT 8. Begrenzung und Überwachung der Exposition/Persönliche Schutzausrüstunge

8.1. Zu überwachende Parameter

Berufsbedingte Expositionsgrenzen	: Nicht festgelegt.
Biologischen Grenzwerte	: Bei Vorliegen der Daten werden diese aufgenommen.
DNELs	: • Calciumchlorid wasserfrei : Arbeiter, akut - lokale Effekte, einatmen : 10 mg/m³ • Calciumchlorid wasserfrei : Arbeiter, langzeit - lokale Effekte, einatmen : 5 mg/m³ • Calciumchlorid wasserfrei : Verbraucher, akut - lokale Effekte, einatmen : 5 mg/m³ • Calciumchlorid wasserfrei : Verbraucher, langzeit - lokale Effekte, einatmen : 2,5 mg/m³
PNECs	: • Calciumchlorid wasserfrei : Nicht anwendbar

8.2. Begrenzung und Überwachung der Exposition

Technische Massnahmen	: Ventilation .
Persönliche Schutzmittel	
- Atemschutz	: Nicht erforderlich.
- Hautschutz	: Geeignete Schutzkleidung .
* - Handschutz	: Geeignete Materialien für Schutzhandschuhe (EN 374): Die arbeitsplatzspezifische Eignung sollte mit den Schutzhandschuhherstellern abgeklärt werden. - Material : Neopren . - Dicke : 0,5 mm - Durchbruchszeit : > 480'
- Augen-/Gesichtsschutz	: Anschliessende Sicherheitsgläser oder Gesichtsschutz.
Begrenzung und Überwachung der Umweltexposition	: Siehe Abschnitte 6, 7, 12 und 13.

ABSCHNITT 9. Physikalische und chemische Eigenschaften

9.1. Angaben zu den grundlegenden physikalischen und chemischen Eigenschaften

Siehe technisches Datenblatt für weitere Informationen.

Physikalische Form (20°C)	: Flüssigkeit .
Aussicht/Farbe	: Klar , Farblos .
Geruch	: Geruchlos .
Geruchsschwelle	: Nicht anwendbar.
pH-Wert	: 7 - 11 (10% Lösung , 20°C)
Schmelz-/Gefrierpunkt	: -40 bis -20 °C
Siedepunkt/Siedestrecke (1013 hPa)	: ca. 100 °C
Flammpunkt	: Nicht anwendbar.
Feuergefahr	: Nicht anwendbar.
Verdampfungsgeschwindigkeit	: Nicht anwendbar.
Explosionsgrenzen in Luft	: Nicht anwendbar.

ABSCHNITT 9. Physikalische und chemische Eigenschaften (Fortsetzung)

	Dampfdruck (20°C)	: 0,0001 kPa
	Relativer Dampfdichte (Luft=1)	: Es liegen keine Angaben vor.
	Relative Dichte der gesättigten Mischung Dampf/Luft (Luft=1)	: Es liegen keine Angaben vor.
*	Die relative Dichte	: 1,40 g/cm³ (40% Lösung) 1,09 g/cm³ (10% Lösung)
	Löslichkeit in Wasser (20°C)	: 74,5 g/100 ml
	Log P Oktanol/Wasser (20°C)	: Nicht anwendbar.
	Zuendtemperatur	: Nicht anwendbar.
	Minimum Entzündungsenergie	: Nicht anwendbar.
	Zersetzungstemperatur	: Nicht anwendbar.
	Viskosität (20°C)	: Es liegen keine Angaben vor.
	Explosive Eigenschaften	: Keine chemischen Gruppen mit explosive Eigenschaften zugeordnet .
	Oxidationseigenschaften	: Keine chemischen Gruppen mit oxidierenden Eigenschaften zugeordnet .

ABSCHNITT 10. Stabilität und Reaktivität

10.1. Reaktivität

Reaktivität : Reagiert mit : Oxidationsmittel , Reduktionsmittel .

10.2. Chemische Stabilität

Stabilität : Stabil unter normalen Umständen .

10.3. Möglichkeit gefährlicher Reaktionen

* Gefährliche Reaktionen : Bei stärke Erhitzung können reizende Dämpfe freikommen.
Berührung mit metallischen Substanzen kann zum Freiwerden von entzündlichen Wasserstoffgas führen.

10.4. Zu vermeidenden Bedingungen

Zu vermeidenden Zuständen : Hochtemperatur .

10.5. Unverträgliche Materialien

Nicht in Verbindung bringen mit : Oxidationsmittel , Reduktionsmittel , Metalle .

10.6. Gefährliche Zersetzungsprodukte

* Gefährliche Zersetzungsprodukte : Unter normalen Bedingungen nicht notwendig .

ABSCHNITT 11. Toxikologische Angaben

11.1. Angaben zu toxikologischen Wirkungen

Akute Toxizität

*	- Einatmen	: Symptome umfassen: Hust , Schwindel . • Calciumchlorid wasserfrei : LC50 (Ratte, Inhalation, 4 St) : 160 mg/m³
*	- Hautkontakt	: Symptome umfassen: Rötung . • Calciumchlorid wasserfrei : LD50 (Kaninchen, Dermal) : > 5000 mg/kg
*	- Nahrungsaufnahme	: Symptome umfassen: Bauchkrämpfe , Übelkeit . • Calciumchlorid wasserfrei : LD50 (Ratte, Oral) : 2301 mg/kg
	Atz-/Reizwirkung auf die Haut	: Kaninchen : Nicht reizend .
*	Schwere Augenschädigung/-reizung	: Verursacht schwere Augenreizung.
	Aspirationsgefahr	: Nicht als gefährlich betrachtet.

ABSCHNITT 11. Toxikologische Angaben (Fortsetzung)

Sensibilisierung der Atemwege/Haut	: Nicht sensibel .
Karzinogenität	: Nicht als karcinogen klassifiziert .
Mutagenität	: Nicht als mutagen klassifiziert .
Reproduktionstoxizität	: Nicht für Reproduktionstoxizität klassifiziert .
Spezifische Zielorgan-Toxizität - einmaliger Exposition	: Beim Menschen : Nicht für Organtoxizität klassifiziert . Bei Tieren : Keine Effekten bekannt.
Spezifische Zielorgan-Toxizität - wiederholter Exposition	: Beim Menschen : Nicht für Organtoxizität klassifiziert . Bei Tieren : Keine Effekten bekannt.

ABSCHNITT 12. Umweltbezogene Angaben

12.1. Toxizität

* Ekotoxizität : • Calciumchlorid wasserfrei : LC50 (Fisch, 96 St) : 4630 mg/l (Primephales promelas)
• Calciumchlorid wasserfrei : CE50 (Alge, 72 St) : 2900 mg/l (Pseudokirchneriella subcapitata) (OECD-Leitsatz 201)
• Calciumchlorid wasserfrei : CE50 (Daphnia magna, 48 St) : 2400 mg/l (OECD-Leitsatz 202)

12.2. Persistenz und Abbaubarkeit

Persistenz und Abbaubarkeit : • Calciumchlorid wasserfrei : Persistenz und Abbaubarkeit : Anorganisches Produkt .

12.3. Bioakkumulationspotenzial

Bioakkumulation : • Calciumchlorid wasserfrei : Bioakkumulation : Keine Bio-Akkumulation erwartet .

12.4. Mobilität im Boden

Mobilität : • Calciumchlorid wasserfrei : Mobilität : Gut löslich im Wasser .

12.5. Ergebnisse der PBT- und vPvB-Beurteilung

Ergebnisse : • Calciumchlorid wasserfrei : PBT/vPvB : Nein

12.6. Andere schädliche Wirkungen

Potenzial zur fotochemischen Ozonbildung	: Es liegen keine Angaben vor.
Potenzial zum Ozonabbau	: Es liegen keine Angaben vor.
Potenzial zur Störung der endokrinen Systeme	: Es liegen keine Angaben vor.
Potenzial zur Erwärmung der Erdatmosphäre	: Es liegen keine Angaben vor.

ABSCHNITT 13. Hinweise zur Entsorgung

13.1. Verfahren der Abfallbehandlung

Produktvernichtung	: Das Produkt muss vernichtet werden gemäss der lokale und internationale Gesetzgebung, durch ein gesetzlich erkannte und spezialisierte Firma.
Europäische Abfallstoffenliste	: XXXXXX - Europäischer Abfallproduktcode. Dieser Code wird auf der Grundlage von die gegenwärtigsten Anwendungen zugewiesen und kann nicht für Verunreinigungen repräsentativ sein, die am wirkungsvollen Gebrauch des Produktes entstanden wurden. Der Produzent der Vergeudung muß seinen Prozeß selbst auswerten und muß die passende überschüssige Kodierung bewilligen. Sehen Sie Entscheidung 2001/118/EG.
Behandlung der Verpakkung	: Die gebrauchte Verpakkung ist ausschliesslich für die Verpakkung dieses Produktes zu benutzen.

ABSCHNITT 13. Hinweise zur Entsorgung (Fortsetzung)

Nach Gebrauch die Verpackung sorgfältig ausleeren und abschliessen.
Wenn es sich um Retourverpakkung händelt, kann die leere Verpakkung wieder am Lieferant angeboten werden.

ABSCHNITT 14. Angaben zum Transport

14.1. UN-Nummer

UN Nr : -

14.2. Ordnungsgemäße UN-Versandbezeichnung

ADR/RID-Name : -
ADN-Name : -
IMDG-Name : -
IATA-Name

14.3. Transportgefahrenklassen

Klasse : -

14.4. Verpackungsgruppe

Verpackungstyp : -

14.5. Umweltgefahren

Umweltgefährlich : Nein
Meeresschadstoff : Nein

14.6. Besondere Vorsichtsmaßnahmen für den Verwender

Gefahrandeutung : -
Gefahrsymbol(e) : -
EmS-N° : -

14.7. Massengutbeforderung gemäß Anhang II des MARPOL-Übereinkommens und gemäß IBC-Code

Schiffstyp : Nicht anwendbar.
Verschmutzungskategorie : Nicht anwendbar.

ABSCHNITT 15. Rechtsvorschriften

15.1. Vorschriften zu Sicherheit, Gesundheits- und Umweltschutz/spezifische Rechtsvorschriften für den Stoff oder das Gemisch

Inventarisierungen : Australische Inventarisation (AICS): Aufgenommen im Inventarisation.
Kanadische Inventarisation (DSL): Aufgenommen im Inventarisation.
Chinesisches Inventarisation (IECS): Aufgenommen im Inventarisation.
Europäische Inventarisation (EINECS): Aufgenommen im Inventarisation.
Japanische Inventarisation (ENCS): Aufgenommen im Inventarisation.
Koreanische Inventarisation (KECI): Aufgenommen im Inventarisation.
Philippinische Inventarisation (PICCS): Aufgenommen im Inventarisation.
USA-Inventarisation (TSCA): Aufgenommen im Inventarisation.

Einschlägigen EU Vorschrift(en) : Richtlinie 98/24/EG des Rates vom 7. April 1998 zum Schutz von Gesundheit und Sicherheit der Arbeitnehmer vor der Gefährdung durch chemische Arbeitsstoffe bei der Arbeit
Entscheidung 2001/118/EG der Kommission vom 16. Januar 2001 zur Änderung der Entscheidung 2000/532/EG über ein Abfallverzeichnis
Verordnung (EG) Nr. 1272/2008 des Europäischen Parlaments und des Rates vom 16. Dezember 2008 über die Einstufung, Kennzeichnung und Verpackung von Stoffen und Gemischen, zur Änderung und Aufhebung der Richtlinien 67/548/EWG und 1999/45/EG und zur Änderung der Verordnung (EG) Nr. 1907/2006

ABSCHNITT 15. Rechtsvorschriften (Fortsetzung)

Verordnung (EU) Nr. 453/2010 der Kommission vom 20. Mai 2010 zur Änderung der Verordnung (EG) Nr. 1907/2006 des Europäischen Parlaments und des Rates zur Registrierung, Bewertung, Zulassung und Beschränkung chemischer Stoffe (Reach)

Nationalen Vorschriften

* - Deutschland : WGK : 1

* - Niederlande : Wasserbeschwerlichkeit : 12
Sanierungsanspannung : C

15.2. Stoffsicherheitsbeurteilung

* Eine Stoffsicherheitsbeurteilung wurde aus der Produkt durchgeführt.

ABSCHNITT 16. Sonstige Angaben

* Dieses Sicherheitsdatenblatt ist aufgestellt worden gemäss der Verordnung (EG) Nr. 1907/2006.
Dieses Sicherheitsblatt ist ausschliesslich bestimmt für industriel/professionel Gebrauch.

* Änderung hinsichtlich voriger Revision.

Änderungen : Allgemeine Revision .

* Quelle der Daten : Die Angaben stützen sich auf den heutigen Stand unserer Kenninnisse (Produzent(en) , Chemiekarte , ...)
Sehe auch auf der Adresse:
http://apps.echa.europa.eu/registered/registered-sub.aspx#search

(EU)H-Hinweis(e) : H319 - Verursacht schwere Augenreizung.

* Klassifizierungsverfahren : Eye Irrit. 2; H319 - Additivitätmethode

* Liste der Abkürzungen und Akronyme : ADN (Accord européen relatif au transport international des marchandises Dangereuses par voie de Navigation intérieur) : Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter in der Binnenschifffahrt
ADR (Accord européen relatif au transport international des marchandises Dangereuses par Route) : Europäisches Übereinkommen über die internationale Beförderung gefährlicher Güter auf der Straße
DNEL (Derived No Effect Level) : Grenzwert, unterhalb dessen der Stoff keine Wirkung ausübt
EC50 : mittlere Effektive Konzentration
EmS (Emergency Schedule) : den ersten Code verweist auf die einschlägigen Brandklasse und den zweite code verweist auf die einschlägingen Verschütten Zeitplan
Eye Irrit. 2 : Augenreizung - Kategorie 2
IATA (International Air Transport Association) :Übereinkommen über die internationale Beförderung gefährlicher Güter im Luftverkehr
IMDG (International Maritime Dangerous Goods code) : Internationalen Übereinkommens für Gefahrgutkennzeichnung für gefährliche Güter im Seeschiffsverkehr
LC50 : mittlere Letale Konzentration
LD50 : mittlere Letale Dosis
NVCI : National Vergiftungen Information Zentrum
OECD (Organisation for Economic Cooperation and Development) : Organisation für wirtschaftliche Zusammenarbeit und Entwicklung
PBT : persistente, bioakkumulierbar und toxisch
PNEC (Predicted No Effect Concentration) : Konzentration unter die Exposition gegenüber
einem Stoff ohne Wirkung
REACH : Registrierung, Bewertung, Zulassung und beschränkung von Chemikalien
RID (Règlement concernant le transport International ferroviaire des marchandises Dangereuses) : internationalen Beförderung gefährlicher Güter im Schienenverkehr

ABSCHNITT 16. Sonstige Angaben (Fortsetzung)

WGK (Wassergefahrdungsklasse)
vPvB : sehr persistent und sehr bioakkumulierbar

Diese Information ist unseres Wissens korrekt und vollständig am Daten der Ausgabe des Sicherheitsdatenblatts. Diese Information betrifft nur dieses Produkt und gibt keine Garantie auf der Qualität und vollständigkeit der Eigenschaften des Produkts, oder falls das Produkt zusammen mit anderen Produkten oder im einzigen anderen Prozess gebraucht wird.
Es bleibt die Verantwortlichkeit des Benutzers sich zu sichern dass diese Information anwendbar und vollständig ist, bezuglich seinen Spezialgebrauch des Produkts.
BRENNTAG übernimmt keine Verantwortung und lehnt Haftung für Verlust oder Schaden ab, die aus dem Gebrauch des Produkts entstehen könnten.

Ende des Dokumentes

No.	Short title	Main User Group (SU)	Sector of Use (SU)	Product Category (PC)	Process Category (PROC)	Environmental Release Category (ERC)	Article Category (AC)	Specified
1	Use as an intermediate	3	1, 4, 5, 6b, 8, 9, 14	NA	1, 2, 3, 4, 6, 8a, 8b, 9, 15, 22, 23	6a	NA	ES1640
2	Formulation & (re)packing of substances and mixtures	3	1, 2, 4, 5, 6b, 8, 10, 11, 12, 13, 14, 15, 19, 20, 0	NA	1, 2, 3, 5, 6, 8a, 8b, 9, 14, 15	2	NA	ES1642
3	Industrial use	3	1, 2a	NA	1, 2, 5, 7, 8a, 8b, 9, 13, 19	4	NA	ES1646
4	Use of low dusty solids	3	0, 1, 2a, 4, 5, 6b, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13	1, 2, 4, 6a	NA	ES1656
5	Use of low dusty solids	22	0, 1, 2a, 4, 5, 6b, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20	NA	1, 2, 3, 4, 5, 6, 8a, 8b, 9, 10, 11, 13	8a, 8d	NA	ES1658
6	Professional use	22	1, 10, 19, 20, 0, 23	NA	1, 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 13, 15, 19, 20	8a, 8d	NA	ES1648
7	Use as processing aid	3	1, 2, 2b, 4, 5, 6b, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	NA	1, 2, 3, 4, 6, 7, 8a, 8b, 9, 10, 13, 15, 22, 23	4	NA	ES1644
8	Use of aqueous solutions	3	0, 1, 2a, 4, 5, 6b, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20	NA	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15	1, 2, 4, 6a	NA	ES1652
9	Use of aqueous solutions	22	0, 1, 2a, 4, 5,	NA	1, 2, 3, 4, 5, 6, 8a,	8a, 8d	NA	ES1654

			6b, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20		8b, 9, 10, 11, 13, 14, 15			
10	Consumer use	21	NA	0, 2, 4, 12, 16, 27, 35, 37	NA	8a, 8d	NA	ES1660

1. Short title of Exposure Scenario 1: Use as an intermediate		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU1: Agriculture, forestry, fishery SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU14: Manufacture of basic metals, including alloys	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC15: Use as laboratory reagent PROC22: Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23: Open processing and transfer operations with minerals/metals at elevated temperature	
Environmental Release Categories	ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)	
2.1 Contributing scenario controlling environmental exposure for: ERC6a		
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.		
2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC8a, PROC8b, PROC9, PROC15, PROC22, PROC23		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and	General measures	Clean up contamination/spills as soon as they

measures to control dispersion from source towards the worker	applicable to all activities	occur.
	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC4, PROC6, PROC8a, PROC8b, PROC9)	
	Equipment cleaning and maintenance Non-dedicated facility	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a)
	General exposures (closed systems) Elevated temperature	Provide extract ventilation to points where emissions occur.(Process temperature > melting point of substance PROC22)
	Material transfers (open systems) Batch processes at elevated temperatures	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(Process temperature > melting point of substance PROC23)
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Respiratory protection complying with EN 143.(PROC4, PROC6, PROC8a, PROC8b, PROC9, PROC22, PROC23)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01mg/m³	< 0,01
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	< 0,01
PROC2, PROC15	---	Worker - inhalative, long-term - systemic	0,50mg/m³	0,10
PROC2, PROC15	---	Worker - inhalative, long-term - local	1,00mg/m³	0,10
PROC3,	---	Worker - inhalative, long-	1,00mg/m³	0,20

PROC8a		term - systemic		
PROC3, PROC8a	---	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC4, PROC6, PROC8b, PROC9	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC4, PROC6, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC8a	Bulk open loading and unloading, Non-dedicated facility	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC8a	Bulk open loading and unloading, Non-dedicated facility	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC8b	Bulk closed loading and unloading, Dedicated facility	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC8b	Bulk closed loading and unloading, Dedicated facility	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC8a	Equipment cleaning and maintenance, Non-dedicated facility	Worker - inhalative, long-term - systemic	4,00mg/m³	0,80
PROC8a	Equipment cleaning and maintenance, Non-dedicated facility	Worker - inhalative, long-term - local	8,00mg/m³	0,80
PROC22	General exposures (closed systems), Elevated temperature, Low fugacity (pt<mp)	Worker - inhalative, long-term - systemic	3,0mg/m³	0,6
PROC22	General exposures (closed systems), Elevated temperature, High fugacity (pt>mp), Low fugacity (pt<mp)	Worker - inhalative, long-term - local	6,00mg/m³	0,60
PROC22	General exposures (closed systems), Elevated temperature, High fugacity (pt>mp)	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC22	General exposures (closed systems), Elevated temperature, High fugacity (pt>mp)	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC23	Material transfers, (open systems), Batch	Worker - inhalative, long-term - systemic	3,00mg/m³	0,60

	processes at elevated temperatures, Low fugacity (pt<mp)			
PROC23	Material transfers, (open systems), Batch processes at elevated temperatures, Low fugacity (pt<mp)	Worker - inhalative, long-term - local	6,00mg/m³	0,60
PROC23	Material transfers, (open systems), Batch processes at elevated temperatures, High fugacity (pt>mp)	Worker - inhalative, long-term - systemic	3,00mg/m³	0,60
PROC23	Material transfers, (open systems), Batch processes at elevated temperatures, High fugacity (pt>mp)	Worker - inhalative, long-term - local	6,00mg/m³	0,60
PROC1	Storage, General exposures (closed systems)	Worker - inhalative, long-term - systemic	0,01mg/m³	< 0,01
PROC1	Storage, General exposures (closed systems)	Worker - inhalative, long-term - local	0,02mg/m³	< 0,01

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 2: Formulation & (re)packing of substances and mixtures	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2: Mining (including offshore industries) SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU19: Building and construction work SU20: Health services SU0: Other
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC2: Formulation of preparations

2.1 Contributing scenario controlling environmental exposure for: ERC2

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC14, PROC15

Product characteristics	Concentration of the Substance in	Covers percentage substance in the product up to 100 % (unless stated differently).

	Mixture/Article	
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC5, PROC6, PROC8a, PROC8b, PROC9)	
	Equipment cleaning and maintenance Non-dedicated facility	Drain or remove substance from equipment prior to break-in or maintenance.(PROC8a)
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Respiratory protection complying with EN 143.(PROC5, PROC6, PROC8a, PROC8b, PROC9)	
	Process sampling Non-dedicated facility	Avoid carrying out operation for more than 1 hour.(PROC8a)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	General exposures	Worker - inhalative, long-term - systemic	0,01mg/m³	< 0,01
PROC1	General exposures	Worker - inhalative, long-term - local	0,02mg/m³	< 0,01
PROC2, PROC15	General exposures, Process sampling	Worker - inhalative, long-term - systemic	0,50mg/m³	0,10
PROC2,	General exposures,	Worker - inhalative, long-	1,00mg/m³	0,10

PROC15	Process sampling	term - local		
PROC3, PROC14	---	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC3, PROC14	---	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC5, PROC6, PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC5, PROC6, PROC8a, PROC8b, PROC9	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC8a	Process sampling, Non-dedicated facility	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC8a	Equipment cleaning and maintenance, Non-dedicated facility	Worker - inhalative, long-term - local	8,00mg/m³	0,80
PROC8a	Process sampling, Non-dedicated facility	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC8a	Equipment cleaning and maintenance, Non-dedicated facility	Worker - inhalative, long-term - systemic	4,00mg/m³	0,80

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 3: Industrial use		
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites	
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2a: Mining (without offshore industries)	
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC13: Treatment of articles by dipping and pouring PROC19: Hand-mixing with intimate contact and only PPE available	
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles	
2.1 Contributing scenario controlling environmental exposure for: ERC4		
Activity	De-icing agent	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual tonnage of road salt	0,25 tonnes/km
	Fraction in road salt	1
	Annual tonnage	0,25 tonnes/km
Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and	Soil	Avoid spilling salt directly onto plants.

releases to soil Organizational measures to prevent/limit release from the site		
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.2 Contributing scenario controlling environmental exposure for: ERC4

Activity	De-icing agent	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
Amount used	Annual tonnage of road salt	1,5 tonnes/km
	Fraction in road salt	0,06
	Annual tonnage	0,09 tonnes/km
Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.3 Contributing scenario controlling environmental exposure for: ERC4

Activity	De-icing agent	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Annual tonnage of road salt	0,8 tonnes/km
	Fraction in road salt	0,35
	Annual tonnage	0,28 tonnes/km

Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.4 Contributing scenario controlling environmental exposure for: ERC4

Activity	De-icing agent	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 80%
Amount used	Annual tonnage of road salt	3 tonnes/km
	Fraction in road salt	0,8
	Annual tonnage	2,4 tonnes/km
Frequency and duration of use	Continuous exposure	3 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and	Soil	Avoid spilling salt directly onto plants.

releases to soil Organizational measures to prevent/limit release from the site		
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.5 Contributing scenario controlling environmental exposure for: ERC4

Activity	Dust suppression	
Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 37%
Amount used	Annual tonnage of road salt	3 tonnes/km
	Fraction in road salt	0,37
	Annual tonnage	1,11 tonnes/km
Frequency and duration of use	Continuous exposure	3 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.6 Contributing scenario controlling environmental exposure for: ERC4

Activity	Dust suppression	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 80%
Amount used	Annual tonnage of road salt	3 tonnes/km
	Fraction in road salt	0,8
	Annual tonnage	2,4 tonnes/km

Frequency and duration of use	Continuous exposure	3 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	
2.7 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC5, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC19		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
	Exposure duration per day	60 min(PROC7)
Other operational conditions affecting workers exposure	Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
	Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately.

	Use suitable eye protection.
Spraying	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Respiratory protection complying with EN 143.(PROC7)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2	---	Worker - inhalative, long-term - systemic	< 0,01mg/m³	< 0,01
PROC1, PROC2	---	Worker - inhalative, long-term - local	0,01mg/m³	< 0,01
PROC5, PROC8a, PROC8b, PROC9, PROC19	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC5, PROC8a, PROC8b, PROC9, PROC19	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC7	---	Worker - inhalative, long-term - systemic	2,00mg/m³	0,40
PROC7	---	Worker - inhalative, long-term - local	4,00mg/m³	0,40
PROC7	Outdoor use.	Worker - inhalative, long-term - systemic	2,80mg/m³	0,56
PROC7	Outdoor use.	Worker - inhalative, long-term - local	5,60mg/m³	0,56
PROC13	---	Worker - inhalative, long-term - systemic	0,70mg/m³	0,14
PROC13	---	Worker - inhalative, long-term - local	1,40mg/m³	0,14

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 4: Use of low dusty solids	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU0: Other SU1: Agriculture, forestry, fishery SU2a: Mining (without offshore industries) SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU19: Building and construction work SU20: Health services
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)
2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a	
As no environmental hazard was identified no environmental related exposure assessment and risk characterization	

was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, low dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13	worst-case	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6,	worst-case	Worker - inhalative, long-term - local	2,00mg/m³	0,20

PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13				

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 5: Use of low dusty solids	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU0: Other SU1: Agriculture, forestry, fishery SU2a: Mining (without offshore industries) SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU19: Building and construction work SU20: Health services
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4,

PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, low dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent/minimize exposures
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13	worst-case	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9,	worst-case	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20

PROC10, PROC11, PROC13				

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 6: Professional use	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU1: Agriculture, forestry, fishery SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU19: Building and construction work SU20: Health services SU0: Other SU23: Electricity, steam, gas water supply and sewage treatment
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC19: Hand-mixing with intimate contact and only PPE available PROC20: Heat and pressure transfer fluids in dispersive, professional use but closed systems
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling environmental exposure for: ERC8d		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Annual tonnage of road salt	0,25 tonnes/km
	Fraction in road salt	1
	Annual tonnage	0,25 tonnes/km

Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
	Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.3 Contributing scenario controlling environmental exposure for: ERC8d

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 20%
Amount used	Annual tonnage of road salt	1,5 tonnes/km
	Fraction in road salt	0,06
	Annual tonnage	0,09 tonnes/km
Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
	Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit	Soil	Avoid spilling salt directly onto plants.

discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.4 Contributing scenario controlling environmental exposure for: ERC8d

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 35%
Amount used	Annual tonnage of road salt	0,8 tonnes/km
	Fraction in road salt	0,35
	Annual tonnage	0,28 tonnes/km
Frequency and duration of use	Continuous exposure	25 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
	Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.5 Contributing scenario controlling environmental exposure for: ERC8d

Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product : 0% - 80%
Amount used	Annual tonnage of road salt	3 tonnes/km
	Fraction in road salt	0,8
	Annual tonnage	2,4 tonnes/km

Frequency and duration of use	Continuous exposure	3 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
	Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site	Soil	Avoid spilling salt directly onto plants.
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	

2.6 Contributing scenario controlling environmental exposure for: ERC8d

Product characteristics	Concentration of the Substance in Mixture/Article	Covers concentrations up to 37%
Amount used	Annual tonnage of road salt	3 tonnes/km
	Fraction in road salt	0,37
	Annual tonnage	1,11 tonnes/km
Frequency and duration of use	Continuous exposure	3 days/year, Dispersive use.
Environment factors not influenced by risk management	Other data. Other information	Spreading width (m)10
Other given operational conditions affecting environmental exposure	Emission or Release Factor: Air	0 %
	Emission or Release Factor: Water	0 %
	Emission or Release Factor: Soil	1 %
	Outdoor use.	
Technical conditions and measures at process level (source) to prevent release Technical onsite conditions and measures to reduce or limit	Soil	Avoid spilling salt directly onto plants.

discharges, air emissions and releases to soil Organizational measures to prevent/limit release from the site		
Conditions and measures related to sewage treatment plant	Not applicable as there is no release to wastewater.	
2.7 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC15, PROC19, PROC20		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Indoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
	provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).(PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15, PROC19)	
	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Respiratory protection complying with EN 143.(PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC15, PROC19)	
2.8 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC19, PROC20		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Exposure duration per day	60 min(PROC11)

	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Outdoor use.	
	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
	Avoid carrying out activities involving exposure for more than 1 hour.(PROC11)	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC11)	
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.
	Respiratory protection complying with EN 143. Particle filter:P2(PROC11)	

3. Exposure estimation and reference to its source

Environment

Used EUSES model.

Contributing Scenario	Specific conditions	Compartment	Value	Level of Exposure	RCR
ERC8d	De-icing agent, application as solution, (amount of 30% in solution)	---	Deposition volume	9g/cm²	0,060
ERC8d	De-icing agent, application as liquid brine, (max. 35% solution)	---	Deposition volume	28g/cm²	0,187
ERC8d	De-icing agent, application as solid, (< 100%)	---	Deposition volume	25g/cm²	0,167
ERC8d	Dust suppression, application as solid, (< 80%)	---	Deposition volume	100g/cm²	0,667
ERC8d	Dust suppression, application as solution, (< 37%)	---	Deposition volume	111g/cm²	0,740

ERC8d	De-icing agent, application as solution, (amount of 30% in solution), High traffic areas	---	Deposition volume	45g/cm²	0,300
ERC8d	De-icing agent, application as solid, (< 100%), High traffic areas	---	Deposition volume	125g/cm²	0,833
ERC8d	De-icing agent, application as liquid brine, (max. 35% solution), High traffic areas	---	Deposition volume	140g/cm²	0,933

Workers

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Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,10mg/m³	0,02
PROC1	---	Worker - inhalative, long-term - local	0,20mg/m³	0,02
PROC2, PROC20	---	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC2, PROC20	---	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15, PROC19	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15, PROC19	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC2	---	Worker - inhalative, long-term - systemic	0,07mg/m³	0,01

PROC2	---	Worker - inhalative, long-term - local	0,14mg/m³	0,01
PROC2, PROC20	---	Worker - inhalative, long-term - systemic	0,70mg/m³	0,14
PROC2, PROC20	---	Worker - inhalative, long-term - local	1,40mg/m³	0,14
PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC19	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC11	---	Worker - inhalative, long-term - systemic	1,40mg/m³	0,28
PROC11	---	Worker - inhalative, long-term - local	2,80mg/m³	0,28
PROC11	---	Worker - inhalative, long-term - systemic	2,8mg/m³	0,56
PROC11	---	Worker - inhalative, long-term - local	5,60mg/m³	0,56

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

The environmental emission has been evaluated using EUSES 2.1 (http://ecb.jrc.ec.europa.eu/euses), in which default values have been used, unless otherwise indicated.
Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 7: Use as processing aid	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU1: Agriculture, forestry, fishery SU2: Mining (including offshore industries) SU2b: Offshore industries SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU16: Manufacture of computer, electronic and optical products, electrical equipment SU17: General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC15: Use as laboratory reagent PROC22: Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting PROC23: Open processing and transfer operations with minerals/metals at elevated temperature
Environmental Release Categories	ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
2.1 Contributing scenario controlling environmental exposure for: ERC4	

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC15, PROC22, PROC23		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	Solid, medium dustiness
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
	Spraying	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings.(PROC7)
	Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).(PROC4, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC22, PROC23)	
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.
	In case of dust or aerosol formation: use respiratory protection with approved filter (P2) Respiratory protection complying with EN 143.(PROC4, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC22, PROC23)	
	Process sampling Non-dedicated facility	Avoid carrying out operation for more than 4 hours.(PROC8a)

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1	---	Worker - inhalative, long-term - systemic	0,01mg/m³	< 0,01
PROC1	---	Worker - inhalative, long-term - local	0,02mg/m³	< 0,01
PROC2, PROC15	---	Worker - inhalative, long-term - systemic	0,50mg/m³	0,10
PROC2, PROC15	---	Consumer - inhalative, long-term - local	1,00mg/m³	0,10
PROC3, PROC13	---	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC3, PROC13	---	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC4, PROC6, PROC8a, PROC8b, PROC9, PROC10	---	Worker - inhalative, long-term - systemic	3,50mg/m³	0,70
PROC4, PROC6, PROC8a, PROC8b, PROC9, PROC10	---	Worker - inhalative, long-term - local	7,00mg/m³	0,70
PROC7	---	Worker - inhalative, long-term - systemic	2,00mg/m³	0,40
PROC7	---	Worker - inhalative, long-term - local	4,00mg/m³	0,40
PROC8a	Equipment maintenance, cleaning	Worker - inhalative, long-term - systemic	4,00mg/m³	0,80
PROC8a	Equipment maintenance, cleaning	Worker - inhalative, long-term - local	8,00mg/m³	0,80
PROC8a	---	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20
PROC8a	---	Worker - inhalative, long-term - local	2,00mg/m³	0,20
PROC22, PROC23	---	Worker - inhalative, long-term - systemic	3,00mg/m³	0,60
PROC22, PROC23	---	Worker - inhalative, long-term - local	6,00mg/m³	0,60

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 8: Use of aqueous solutions	
Main User Groups	SU 3: Industrial uses: Uses of substances as such or in preparations at industrial sites
Sectors of end-use	SU0: Other SU1: Agriculture, forestry, fishery SU2a: Mining (without offshore industries) SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU19: Building and construction work SU20: Health services
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC7: Industrial spraying PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC1: Manufacture of substances ERC2: Formulation of preparations ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ERC6a: Industrial use resulting in manufacture of another substance (use of intermediates)

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC2, ERC4, ERC6a

As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15

Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,1 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9,	worst-case	Worker - inhalative, long-term - systemic	1,00mg/m³	0,20

PROC10, PROC13, PROC14, PROC15				
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC13, PROC14, PROC15	worst-case	Worker - inhalative, long-term - local	2,00mg/m³	0,20

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 9: Use of aqueous solutions	
Main User Groups	SU 22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
Sectors of end-use	SU0: Other SU1: Agriculture, forestry, fishery SU2a: Mining (without offshore industries) SU4: Manufacture of food products SU5: Manufacture of textiles, leather, fur SU6b: Manufacture of pulp, paper and paper products SU8: Manufacture of bulk, large scale chemicals (including petroleum products) SU9: Manufacture of fine chemicals SU 10: Formulation [mixing] of preparations and/ or re-packaging (excluding alloys) SU11: Manufacture of rubber products SU12: Manufacture of plastics products, including compounding and conversion SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement SU14: Manufacture of basic metals, including alloys SU15: Manufacture of fabricated metal products, except machinery and equipment SU19: Building and construction work SU20: Health services
Process categories	PROC1: Use in closed process, no likelihood of exposure PROC2: Use in closed, continuous process with occasional controlled exposure PROC3: Use in closed batch process (synthesis or formulation) PROC4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC6: Calendering operations PROC8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC10: Roller application or brushing PROC11: Non industrial spraying PROC13: Treatment of articles by dipping and pouring PROC14: Production of preparations or articles by tabletting, compression, extrusion, pelettisation PROC15: Use as laboratory reagent
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems

2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d
As no environmental hazard was identified no environmental related exposure assessment and risk characterization

was performed.

2.2 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
	Physical Form (at time of use)	liquid
	Vapour pressure	< 0,1 hPa
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently).	
Other operational conditions affecting workers exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently.	
Technical conditions and measures to control dispersion from source towards the worker	General measures applicable to all activities	Clean up contamination/spills as soon as they occur.
Organisational measures to prevent /limit releases, dispersion and exposure	General measures applicable to all activities	Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop.
Conditions and measures related to personal protection, hygiene and health evaluation	General measures applicable to all activities	Avoid direct skin contact with product. Wear suitable gloves tested to EN374 during the activities where the skin contact is possible. Wash off any skin contamination immediately. Use suitable eye protection.

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Workers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15	worst-case	Worker - inhalative, long-term - local	1,00mg/m³	0,20

PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC13, PROC14, PROC15	worst-case	Worker - inhalative, long-term - local	2,00mg/m³	0,20

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

Additional good practice advice beyond the REACH Chemical Safety Assessment

Assumes a good basic standard of occupational hygiene is implemented.

1. Short title of Exposure Scenario 10: Consumer use		
Main User Groups	SU 21: Consumer uses: Private households (= general public = consumers)	
Chemical product category	PC0: Other products: PC2: Adsorbents PC4: Anti-freeze and de-icing products PC12: Lawn and garden preparations, including fertilizers (- Fertilizers) PC16: Heat transfer fluids PC27: Plant protection products PC35: Washing and cleaning products (including solvent based products) PC37: Water treatment chemicals	
Environmental Release Categories	ERC8a: Wide dispersive indoor use of processing aids in open systems ERC8d: Wide dispersive outdoor use of processing aids in open systems	
2.1 Contributing scenario controlling environmental exposure for: ERC8a, ERC8d		
As no environmental hazard was identified no environmental related exposure assessment and risk characterization was performed.		
2.2 Contributing scenario controlling consumer exposure for: PC0, PC2, PC4, PC12, PC16, PC37		
Product characteristics	Concentration of the Substance in Mixture/Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Amount used	Amount used per event	50 kg
Frequency and duration of use	Frequency of use	24 Hours/event
	Frequency of use	365 days/year
Human factors not influenced by risk management	Release area	125 m²
	Breathing rate	32,9 m3/day
Other given operational conditions affecting consumers exposure	Room size	1 m3
	Ventilation rate per hour	0,6
	Covers use at ambient temperatures.	
2.3 Contributing scenario controlling consumer exposure for: PC27, PC35		
Activity	Spraying	
Product characteristics	Concentration of the Substance in Mixture/Article	Concentration of substance in product: 0% - 45%
Frequency and duration of use	Spray Duration	10 min
Other given operational conditions affecting consumers exposure	Room size	58 m3
Conditions and measures related to protection of consumer (e.g.	Consumer Measures	Ensure spraying away from persons.

behavioural advice, personal protection and hygiene)	

3. Exposure estimation and reference to its source

Environment

No exposure assessment presented for the environment.

Consumers

ECETOC TRA

Contributing Scenario	Specific conditions	Exposure routes	Level of Exposure	RCR
PC0, PC2, PC4, PC9b, PC12, PC16, PC27, PC35, PC37	---	Consumer - inhalative, long-term - systemic	< 0,01mg/m³	< 0,01
PC0, PC2, PC4, PC9b, PC12, PC16, PC27, PC35, PC37	---	Consumer - inhalative, long-term - local	0,005mg/m³	< 0,01
PC12	Spraying	Consumer - inhalative, long-term - systemic	0,69mg/m³	0,14
PC12	Spraying	Consumer - inhalative, long-term - local	0,687mg/m³	0,27
PC27	Spraying	Consumer - inhalative, long-term - systemic	0,69mg/m³	0,14
PC27	Spraying	Consumer - inhalative, long-term - local	0,687mg/m³	0,27

K35100 has been used to describe the product category.

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented.
Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.
For scaling see: http://www.ecetoc.org/tra
Estimated exposures are not expected to exceed PNEC when the identified Risk Management Measures / Operational Conditions are adopted, as indicated in Section 2
Only properly trained persons shall make use of scaling methods while checking whether the OC and RMM are within the boundaries set by the ES

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