

Ac 23 Paillettes

Fiche de données de sécurité

Date d'émission: 01-12-2014
Remplace: 08-10-2010

1: Identification de la substance/préparation et de la société/responsable

1.1	Identification du produit	Chlorure de calcium 75-99 %, CC road®, CC tech®, CC food®, CC farm®. Sous forme de granulé solide. Cette MSDS est valable pour toutes les formes de faible empoussièrement au chlorure de calcium (paillettes, grêlons, granulés, flocons, pellets, perles). PAS VALABLE POUR LA POUDRE.
	Nom chimique/synonymes	Chlorure de calcium (Calcium chloride)
	Numéro d'enregistrement selon nomenclature REACH	1. Qualités d'importation: 01-2119494219-28-0001 2. Fabrication à Kokkola: 01-2119494219-28-0002
	Numéro CAS (No CAS)	10043-52-4
	Numéro index EC (No EC)	233-140-8
	Numéro index, CLP Annexe VI	017-013-00-2
1.2	Utilisations pertinentes identifiées de la substance ou préparation et utilisations déconseillées	Voir Annexe 1 à cette MSDS. Utilisations les plus courantes: Suppression de poussière, aide au processus de forage pétrolier, déshumidification, dégivrage des routes, additif alimentaire, liquide de refroidissement. Aucune utilisation déconseillée n'est identifiée.
1.3	Détails du fournisseur de la fiche de données de sécurité (MSDS)	
	Fournisseur/Importateur UE	
	Adresse	PERIMETRE 21 AVENUE JOLIOT CURIE 17180 PERIGNY
	Numéro de téléphone	+33 5 46 31 02 69
1.4	Numéro d'appel d'urgence	Service 24 heures est disponible au CapTv: 01 40 05 48 48 ou appeler 112, voir également www.centres-antipoison.net

2: Identification des dangers

2.1 Classification de la substance ou préparation

2.1.1 Selon le règlement CLP EG/1272/2008


Dommages sévère aux yeux / irritation pour les yeux, Danger de Catégorie 2; H319:
Provoque une irritation sévère pour les yeux.
Voir également la rubrique 15 concernant la classification.

2.1.2 Classification selon DSD 67/548/EEC

Xi; R36 Irritation pour les yeux.

2.2 Eléments d'étiquetage

2.2.1 Selon la directive CLP

Pictogramme de danger SGH	
Appellation du signal	Attention
Mention de danger	H319: Provoque une sévère irritation pour les yeux.
Consignes de sécurité – précaution	P280: Porter des gants de protection/des vêtements de protection/protection pour les yeux/protection faciale.
Consignes de sécurité – mesures	P305+P351: SI DANS LES YEUX: Rincer soigneusement avec de l'eau durant plusieurs minutes. P337+P313: Si l'irritation des yeux persiste: consulter un médecin/soin.
Consignes de sécurité – entreposage	-
Consignes de sécurité – déchets	-

Pour les phrases de sécurité en texte intégral, voir rubrique 16.

Autres étiquettes:

Contient: Chlorure de calcium 75-99%

2.3 Autres dangers

Le produit peut provoquer de légères irritations de la peau et rendre la peau sèche.

3: Composition / information sur les ingrédients

3.1 Substances

3.2 Mélanges

No EC	No CAS	No Nomencl. REACH	Nom des composants	Conc. wt/wt	Classification	Com.
233-140-8	10043-52-4	01-2119494219-28	Chlorure de calcium	75-99 %	CLP: Irritation pour les yeux, Catégorie 2; H319 DSD: Xi; R36	
-	10035-04-8		Chlorure de calcium dihydrate	variant	CLP: Irritation pour les yeux, Catégorie 2; H319 DSD: Xi; R36	
-	25094-02-4		Chlorure de calcium tétra hydrate	variant	CLP: Irritation pour les yeux, Catégorie 2; H319 DSD: Xi; R36	
-	7774-34-7		Chlorure de calcium hexa hydrate	variant	CLP: Irritation pour les yeux, Catégorie 2; H319 DSD: Xi; R36	
215-137-3	1305-62-0		Calcium hydroxyde	<1 %	CLP Corrosif Cat 1; H314 DSD; C; R34	WEL

Explication concernant les abréviations:

No CAS = Chemical Abstracts Service (service des résumés analytiques de chimie; No. UE (Numéro Einecs ou Elincs) = European Inventory of Existing Commercial Chemical Substances (Inventaire européen des substances chimiques commerciales existantes) ou European List of Notified Chemical Substances (Liste européenne des substances chimiques des substances notifiées).

Teneurs spécifiées en: %, %wt/wt, %vol/wt, %vol/vol, mg/m³, ppb, ppm, wt%, vol%.

WEL = Le produit a une limite d'exposition en milieu de travail (workplace exposure limit), PBT = Le produit est déclaré depuis qu'il a une substance PBT ou vPvB..

Commentaires: Dans la nomenclature REACH du chlorure de calcium, les différents hydrates dans le produit sont considérés comme la même substance que l'anhydre avec référence à l'exemption d'enregistrer les hydrates dans l'annexe V de REACH. Toutes les formes peuvent être présentes dans les produits. Con-taminants Probables: Carbonate de Calcium, Oxyde de Calcium, Chlorure de Métaux Alcalins, Chlorures de Métaux Alcalino-Terreux. Teneur typique d'hydroxyde de calcium < 1 %. Pour les explications des risques en texte intégral, voir rubrique 16.

4: Mesures de premiers secours

4.1	Description des mesures de premiers secours	
	Inhalation	Déplacer à l'air frais, garder au chaud et au repos. Si les symptômes persistent, consulter un médecin.
	Contact avec la peau	Retirer les vêtements contaminés. Laver toute contamination de la peau immédiatement et abondamment avec de l'eau. Laver les vêtements avant de les réutiliser.
	Contact avec les yeux	Enlever les lentilles de contact si présentes. Rincer abondamment les yeux avec une solution de lavage des yeux ou de l'eau propre pendant au moins 10 minutes. Les paupières doivent être écartées du globe oculaire pour assurer un rinçage complet. Consulter un médecin.
	Ingestion	<u>NE PAS</u> faire vomir. Rincer la bouche avec de l'eau et donner beaucoup d'eau à boire (au moins 300 ml). Consulter un médecin si les symptômes persistent.
4.2	Plus importants symptômes et effets à la fois aigus et retardés	
	Inhalation	L'inhalation d'aérosols du produit peut irriter le système respiratoire. Pour une exposition unique, aucun effet irréversible n'est connu.
	Contact avec la peau	Peut provoquer une irritation modérée de la peau. Le produit ne donnera pas de symptômes retardés.
	Contact avec les yeux	Peut provoquer une grave irritation de l'oeil. Si l'oeil n'est pas lavé à fond, il y a un risque de dommages irréversible aux yeux.
	Ingestion	Peut provoquer une irritation de l'oesophage et de l'estomac. Le produit ne donnera probablement pas de dommages retardés ou irréversibles.
4.3	Indication de tout soin médical immédiat et de traitement spécial nécessaire	<u>NE PAS</u> faire vomir. Le produit, de manière encore plus sévère avec le chlorure d'hydrogène de l'estomac, pourrait provoquer une irritation sur l'oesophage ou il peut encore irriter le système respiratoire. Rincer la bouche avec de l'eau et donner beaucoup d'eau à boire (au moins 300 ml) et observer le patient.

5: Mesure de lutte contre l'incendie

5.1	Moyen d'extinction	a. Le produit n'est pas combustible. Choisir un moyen d'extinction en fonction du feu environnant.
	a. Moyen d'extinction recommandé b. Moyen d'extinction déconseillé	b. Tous les moyens d'extinction sont autorisés; Sélectionner le moyen d'extinction approprié en fonction du feu environnant.
5.2	Dangers spéciaux dus à la substance ou à un mélange	Non spécifié.
5.3	Conseil pour les pompiers	Dépend du feu environnant.

6: Mesures à prendre en cas de dispersion accidentelle

6.1	Précautions individuelles, équipement de protection et procédures d'urgence	
6.1.1	Pour personnel non urgentiste	Pour équipement personnel de protection voir rubrique 8.
6.1.2	Pour urgentistes	Pour équipement personnel de protection voir rubrique 8.
6.2	Précautions pour la protection de l'environnement	Eviter les déversements incontrôlés dans l'environnement (rivières, cours d'eau, égouts, etc.). Voir scénarios d'exposition correspondants couvrant l'utilisation prévue dans l'environnement comme le dégivrage et la suppression de poussière.
6.3	Méthodes et matériel de confinement et de nettoyage	
6.3.1	Remblai encaissant / étanchéité	En cas de grands rejets dans un environnement sensible; Endiguer avec du sable ou du matériau inerte et ramasser le matériau. Nettoyer les contaminations/déversements dès qu'ils se produisent. Ramasser autant que possible dans un récipient approprié propre, de préférence pour une réutilisation, autrement pour élimination. Laver la zone de déversement avec une grande quantité d'eau. Ne pas laver avec de l'eau dans un environnement sensible.
6.3.2	Mesures de nettoyage recommandées	
6.3.3	Mesures non recommandées	
6.4	Référence à d'autres rubriques	Pour les mesures d'élimination des déchets voir rubrique 13.

7: Manipulation et stockage

7.1	Manipulation et stockage	Précaution pour une manipulation sûre Opérer dans un endroit bien ventilé, les concentrations atmosphériques doivent être contrôlées en conformité avec les scénarios d'exposition et les limites d'exposition professionnelle. Eviter l'inhalation de poussières. Eviter tout contact avec la peau et les yeux. Laver la peau ou les vêtements contaminés immédiatement après le contact avec le produit. Signaler tous les problèmes de peau qui peuvent se développer. Voir la rubrique 8 pour les mesures de protection personnelle et de contrôle de la ventilation. Ne pas manger, boire ou fumer pendant la manipulation du produit. Se laver les mains après avoir terminé de travailler avec le produit. Voir les scénarios pertinents d'exposition: ES9 Manipulation de chlorure de calcium avec faible empoussièrément.
7.2	Condition de stockage en sécurité y compris dans des lieux inappropriés	Entreposez dans un endroit sec, pas au-dessus de la température ambiante normale de la pièce. Ne pas stocker avec des acides ou des agents oxydants ou réducteurs. Eviter une ventilation excessive pendant le stockage car le produit peut absorber l'humidité de l'air. Aucune ventilation spéciale n'est demandée. Voir ES9 Manipulation de chlorure de calcium avec faible empoussièrément.
7.3	Usage(s) final(ux) spécifique(s)	Voir les différents scénarios d'exposition. Aucun usage spécifique identifié.

8: Contrôles de l'exposition / protection personnelle

8.1 Paramètres de contrôle des valeurs limites nationales d'exposition professionnelle, EH 40, 2005 avec mises à jour

No CAS	Nom de la substance	WEL 8 h	WEL 5 min	WEL 15 min
	Poussière (quantité inhalable de toute poussière) Poussière respirable	10 mg/m ₃ 4 mg/m ₃		
1305-62-0	Hydroxyde de calcium	5 mg/m ₃		

WEL = Limite d'exposition en milieu de travail (Workplace Exposure Limit)

Dose dérivée sans effet (DNEL)

No CAS	Nom de la substance	DNEL (mode d'exposition)	Scénario d'exposition Annexe
10043-52-4	Chlorure de calcium	DNELinhalation par le travailleur - long terme 5 mg/m ₃	ES9
10043-52-4	Chlorure de calcium	DNELinhalation par le travailleur – court terme 10 mg/m ₃	ES9
10043-52-4	Chlorure de calcium	Consommateur, population en général DNELinhalation – long terme 2.5 mg/m ₃	ES10 (pas joint, voir le site Internet de Tetra Chemicals)
10043-52-4	Chlorure de calcium	Consommateur, population en général DNELinhalation – court terme 5 mg/m ₃	ES10 (pas joint, voir le site Internet de Tetra Chemicals)
10043-52-4	Chlorure de calcium	Le DNELdermalacute doit seulement être dérivé que si le danger de toxicité aiguë (se rapportant à la classification et à l'étiquetage) a été identifié et que les pics d'exposition risquent de se produire. Les données disponibles ne déclenchent pas de classification pour une toxicité aiguë par voie cutanée systémique.	
10043-52-4	Chlorure de calcium	DNELderma effet à long terme. DNEL pas dérivée.	
10043-52-4	Chlorure de calcium	DNELinhalation effets systémiques à long terme: Aucune DNEL n'est dérivée. Aucun effet à long terme ne sont attendus, également en tenant compte de l'absorption recommandée quotidienne de 1000 mg/kg poids corporel (pc) CaCl ₂ .	

Le ES 1 pour la Production et le ES 10 pour les usages des consommateurs ne sont pas annexés à ces ES.

Concentration Prédite Sans Effet (Predicted No Effect Concentration = PNEC)

No CAS	Nom de la substance	PNEC (compartiment environnement)	Scenario d'exposition Annexe 2
10043-52-4	Chlorure de calcium	Dépôt sur le sol et les plantes: NEdep* 150 g/m ²	Si le produit est utilisé pour le dégivrage ou la suppression de poussières, voir ES7 (pas inclus dans cette MSDS).
10043-52-4	Chlorure de calcium	Plantes terrestres sensibles: 215 mg chlorure/kg	Si le produit est utilisé pour le dégivrage ou la suppression de poussières, voir ES7 (pas inclus dans cette MSDS).
10043-52-4	Chlorure de calcium	Parce que la concentration de calcium et de chlorure varie entre les écosystèmes aquatiques (0,6-210 mg/L), il n'est pas jugé utile de dériver une PNECwater ou PNECmarine générique (ni valeur ajoutée ni intermittentes)	
10043-52-4	Chlorure de calcium	Aucune donnée toxique sur les organismes de sédiment d'eau douce ou marins n'est disponible. Le chlorure de calcium est présent dans l'environnement sous forme d'ions de calcium et de chlorure, ce qui implique qu'il ne s'absorbera pas sur des particules et il n'est pas jugé utile de dériver une PNECfreshwater ou PNECmarine pour le sédiment.	
10043-52-4	Chlorure de calcium	Aucune donnée de toxicité fiable ou pertinente sur les organismes terrestres n'est disponible. Le chlorure de calcium est présent dans l'environnement sous forme d'ions de calcium et de chlorure, ce qui implique qu'il ne s'absorbera pas sur des particules et il n'est pas jugé utile de dériver une PNECTerrestrial.	
10043-52-4	Chlorure de calcium	Aucun tests de toxicité sur les effets du chlorure de calcium sur les organismes de station d'épuration des eaux usées (STP, sewage treatment plant) ne sont disponibles. Parce que la concentration de calcium et de chlorure varie entre les écosystèmes aquatiques, il n'est pas jugé utile de dériver une PNECSTP ou PNECS-TP-added générique.	
10043-52-4	Chlorure de calcium	Compte tenu des aspects nutritionnels, le métabolisme et les mécanismes d'actions des ions de calcium et de chlorure il n'est pas jugé utile de dériver une PNECoral (empoisonnement secondaire).	

* Une tentative "PNEC", un soi-disant "sans effet de dépôt (no-effect-deposition)" (NEdep) a été dérivée pour la voie d'exposition pour le dépôt de calcium par les sels de voirie ou les supprimeurs de poussières. Il convient de noter que, bien que les unités se réfèrent à l'exposition par l'air, cette valeur reflète les effets causés par le CaCl₂ déposé par l'air sur la surface du sol ou sur d'une plante.

Valeurs limites biologique	Aucune.
Procédure de surveillance recommandée	Normalement pas nécessaire. S'il y a un soupçon que les valeurs limites d'exposition professionnelle ou les valeurs DNEL d'inhalation pourraient être dépassées, les mesures des poussières de chlorure de calcium (poussières totales comme cas extrême) pourraient être faites.

8.2 Contrôles de l'exposition

8.2.1	Mesures techniques recommandées de contrôle	Voir ES9. Manipulation de chlorure de calcium avec empoussièrément bas, pour contrôles mécaniques et ventilation appropriés. L'utilisation normale de chlorure de calcium, en granulés ou flocons, ne nécessite pas de ventilation exhaustive spéciale.
8.2.2	Mesures de protection individuelle, p.ex. équipement de protection personnelle	
	Protection des yeux / visage	Voir ES 9. Utiliser des lunettes de protection oculaire appropriées si un contact avec les yeux est vraisemblable. La plupart de matériaux pour les lunettes de protection oculaire ainsi que pour les visières-écrans faciales conviendront probablement, p.ex. le polycarbonate.
	Protection de la peau i) Protection des mains (matériel, épaisseur, délai de rupture) ii) Autres protection	Voir ES 9. i) Porter des gants (testés EN374) si une contamination des mains est vraisemblable. Laver immédiatement toute contamination de la peau. Les matériaux convenant pour les gants sont le néoprène (chloroprène) et le caoutchouc nitrile. Temps de passage pour le matériel > 0.5mm est probablement de 8 heures. Les matériaux recommandés sont également appropriés pour les impuretés se produisant normalement dans le chlorure de calcium. Les gants contaminés doivent être soigneusement rincés à l'eau avant de les réutiliser. Matériaux non appropriés: Gants en cuir (décomposition du matériau). ii) Protection de la peau et du corps: Les vêtements normaux de travail conviennent.
	Protection respiratoire	Normalement pas nécessaire. Voir ES 9.
8.2.3	Limites d'exposition	Aucune. Voir cependant ES 7 pour dépôt sur le sol et les environnements plantes si ce produit est utilisé pour le dégivrage ou la suppression de poussières. ES 7 n'est pas joint à cette FDS. Voir le site Web de Tetra Chemicals pour cette MSDS pour le chlorure de calcium en Poudre.

Rubrique

9: Propriétés physiques et chimiques

9.1 Information sur la base des propriétés physiques et chimiques

Toutes les données de cette section concernent les matières anhydres si non spécifié autrement.

Apparence/Forme	Poudre/solide
Couleur	Blanc; la substance pourrait contenir de faibles impuretés de fer qui donne une légère nuance de coloration au produit final en fonction de l'état d'oxydation du fer lui-même (blanc cassé, jaune, rose).
Odeur	Aucune
Seuil d'odeur	Non applicable

pH	7-11 dans une solution d'eau à 10%
Point de fusion/Point de congélation	782 °C
Point d'ébullition initial	> 1600 °C
Point d'éclair	Non applicable
Taux d'évaporation	Non applicable
Inflammabilité (solides, gaz)	La substance est ininflammable.
Limites supérieure / inférieure d'inflammabilité ou d'explosion	Non applicable
Limites d'explosion	La substance est non-explosive.
Pression de vapeur	Négligeable
Densité de vapeur	Non applicable
Densité relative	2.15 g/cm ³ à 25 °C 2.15 g/cm ³ à 15 °C
Solubilité (eau)	745 g/L à 20 °C 1590 g/L à 100 °C
Coefficient de partage n-octanol/eau	Non applicable pour une substance non organique
Température d'auto-ignition	Non applicable
Température de décomposition	Non applicable
Viscosité	Non applicable pour un produit solide
Propriétés explosives	La substance est non-explosive.
Propriétés oxydantes	La substance est non-oxydante
Distribution des tailles de particules	Poudre typique de chlorure de calcium: D10 = 8.2µm (RSD = 35.0%); D50 = 93.2µm (RSD = 12.3%), D90 = 304.2µm (RSD = 2.5%). D10%, D50% et D90% sont les pourcentages respectifs de la distribution des tailles volumétriques. RSD = Déviation relative standard (Relative standard deviation).

9.2 Autres informations

Aucune

10: Stabilité et réactivité

10.1	Réactivité	La substance pourrait réagir avec de forts agents réducteurs et oxydants.
10.2	Stabilité chimique	Stable dans les conditions recommandées de stockage et de manipulation.
10.3	Possibilité de réactions dangereuses	Le chlorure de calcium pourrait réagir violemment avec de forts agents réducteurs et oxydants.
10.4	Conditions à éviter	Forts agents réducteurs et oxydants.
10.5	Matériaux incompatibles	Le chlorure de calcium peut provoquer le pitting et la corrosion de certaines nuances d'aciers inoxydables. A haute température et dans des conditions de contraintes il peut favoriser la corrosion sous contrainte.
10.6	Produit de décomposition dangereux	Aucun lorsqu'utilisé selon les usages identifiés.

11: Informations toxicologiques

11.1 Information sur les effets toxicologiques

Le chlorure de calcium est facilement dissocié dans l'eau en ions de calcium et de chlorure. L'absorption, la distribution et l'excrétion des ions est réglementée séparément. Le calcium et le chlorure sont des constituants essentiels du corps de toutes les espèces animales. Le calcium est essentiel pour la formation du squelette et la régulation de la transmission nerveuse, la contraction musculaire et la coagulation du sang. Le chlorure est nécessaire pour réguler la pression osmotique intracellulaire et le tamponnage. Le calcium et le chlorure sont deux éléments nutritifs essentiels pour les personnes et un apport quotidien de 1000 mg de chacun des ions est recommandé. Quant aux personnes en bonne santé, l'apport maximal tolérable pour le calcium est fixé à 2500 mg par jour (équivalent à 6.9 g CaCl₂ par jour) (Comité permanent pour l'évaluation des apports nutritionnelles de référence, 1999 (Standing Committee on the Scientific Evaluation of Dietary Reference Intakes, 1999)). Pour le chlorure, l'apport nutritionnel de référence est fixé à 2500 mg/jour (équivalent à 3.9 g CaCl₂ par jour) (Ministère de la Santé, Royaume-Uni, 1991 (Department of Health, UK, 1991)). L'apport estimé de chlorure de calcium dans une forme d'additifs alimentaires (160-345 mg/jour) est nettement inférieur à ces valeurs. Conformément à cela, l'établissement d'une ADI (DJA) pour le chlorure de calcium n'a pas été jugé nécessaire par le JECFA (Comité mixte FAO/WHO d'experts des additifs alimentaires; 1974, 2001 (Joint FAO/WHO Expert Committee on Food Additives; 1974, 2001)). Par conséquent, de petites quantités du produit ne sont normalement pas dangereuses, sauf en cas de contact avec les yeux.

a) Toxicité aiguë

Exposition à court terme

Ingestion: Le chlorure de calcium peut irriter l'oesophage et l'estomac.

DL50: 2301 mg/kg de poids corporel (pc) (rat mâle/femelle). Méthode OECD 401.

Inhalation: Peut provoquer une irritation des membranes muqueuses du pharynx et de la gorge et une sensation déplaisante dans la bouche déjà après la première inhalation en cas de concentrations élevées de niveaux de poussières.

Conformément à la colonne 2 de l'Annexe VIII de REACH, l'étude de toxicité aiguë ne doit pas être réalisée car des informations fiables sur la toxicité par deux autres voies d'exposition, orale et cutanée, est disponible. Voir cependant "Autres informations" ci-dessous sur l'expérience chez les humains.

Contact avec les yeux: Le chlorure de calcium est classé comme irritant pour les yeux, catégorie 2. L'effet est toutefois local et l'absorption ou d'autres effets toxiques systémiques par contact avec les yeux ne sont pas attendus.

Contact avec la peau: LD50 (cutanée) > 5000 mg/kg de poids corporel (pc) (homme/femme)

Exposition à long terme:

Ingestion: Compte tenu de l'apport quotidien recommandé de 1000 mg/kg pc CaCl₂ aucun effet négatif pour une exposition à long terme n'est attendu en cas d'ingestion.

Inhalation: Sur la base des données disponibles et en tenant compte de la toxico-cinétique et le rôle phy-siologique normal, des effets systémiques du chlorure de calcium ne sont pas prévus après une exposition répétée.

Contact avec les yeux: Aucun effet toxique n'est prévu sauf ceux des propriétés d'irritation du chlorure de calcium. Voir ci-dessous sur l'irritation des yeux.

Contact avec la peau: Aucun effet toxique systémique n'est attendu d'une exposition cutanée à long terme au chlorure de calcium. L'absorption cutanée est probablement lente et les ions de calcium et de chlorure sont normalement présents dans le corps.

b) Corrosion/irritation cutanée

Le chlorure de calcium pourrait provoquer une irritation modérée de la peau, en particulier le chlorure de calcium anhydre.

Le chlorure de calcium n'est cependant pas classé comme un irritant pour la peau. Non irritant sur le lapin selon OECD 404.

Effets à long terme:

Le chlorure de calcium n'est pas irritant pour la peau; donc on ne s'attend pas à induire des effets locaux en cas d'exposition par voie cutanée. Cependant toutes les expositions à long terme à une solution d'eau avec des irritants légers pourrait provoquer une dermatite atopique et des irritations de la peau chez des individus sensibles.

c) Lésion / irritation oculaires graves

Chlorure de calcium anhydre (lapin): Très irritant OECD 405.

Chlorure de calcium di- et tétra hydrates (lapin): Irritant (OECD 405)

Chlorure de calcium hexa hydrate (lapin): Modérément irritant (OECD 405)

La différence de l'irritation des yeux de la substance sans eau et les hydrates pourrait s'expliquer par la réaction lorsque le chlorure de calcium sans eau absorbe l'eau cristalline de l'oeil. Cette réaction est ex-

thermique et irrite l'oeil par séchage des lentilles et provoque des blessures lorsque la chaleur se dégage. Le contact à long terme avec les yeux ou ne pas se laver les yeux correctement après un contact d'exposition à court terme pourrait provoquer des dommages irréversibles aux yeux.

d) Sensibilisation cutanée ou respiratoire

Le chlorure de calcium n'est pas un sensibilisateur respiratoire ou cutané. Conformément avec la rubrique 1 de l'Annexe XI de REACH, les essais ne paraissent scientifiquement pas nécessaires; le chlorure de calcium est considéré comme ne pas avoir de propriétés de sensibilisation, sur la base du rôle physiologique de ses deux ions qui le constituent, ainsi que le fait que les effets de sensibilisation des deux ions n'ont jamais été signalés, malgré une utilisation dispersive historique et sur une large échelle à long terme (p. ex. via les denrées alimentaires et les médicaments).

e) Effets mutagènes des cellules germinales

Essai de mutation bactérienne inverse: Négatif pour la Salmonelle. Typhimurium, autres: TA92, TA1535, TA100, TA1537, TA94, TA98 (tous les types de souches / cellules testés); met. act.: avec; cyto-toxicité: non, mais testé pour limiter les concentrations. Test d'aberration In vitro de chromosome de mammifère (aberration chromosomique), négatif pour les fibroblastes pulmonaires de hamster chinois (V79) (tous les types de souches / cellules testés)
Tous les essais de propriétés gène-toxiques ont été négatifs. Le calcium et le chlorure sont des constituants normaux de l'organisme. La substance ne devrait pas être gène-toxique.

f) Cancérogénicité

Le chlorure de calcium n'est pas gène-toxique in vivo. Le calcium et le chlorure sont tous les deux des éléments nutritifs essentiels pour les humains et un apport quotidien de plus de 1000 mg de chacun des ions est recommandé. Sur la base de ces informations, il est conclu que la substance n'est pas cancérogène.

g) Toxicité sur la reproduction

Le chlorure de calcium n'atteindra normalement jamais le fœtus ou les organes reproducteurs mâles ou femelles lors de l'exposition par voie orale, cutanée ou par inhalation, car il ne devient pas disponible par voie systémique.

Une étude de développement par voie orale a été réalisée sur 3 espèces (souris, rat et lapin). Dans les trois espèces, aucun effet tératogène n'a été constaté avec le chlorure de calcium, et les NOAEL étaient au-dessus des plus hautes doses données. Ainsi le chlorure de calcium ne devrait avoir aucune toxicité pour la reproduction.

h) STOT-Exposition unique

Voie respiratoire: Non irritant.

i) STOT-Exposition répétées

Voie respiratoire: Non irritant.

j) Danger par aspiration

Sans objet pour une substance solide.

k) Autres informations

Expérience de l'inhalation de chlorure de calcium chez l'homme (Vinnikov): Soixante-cinq patients atteint de tuberculose (51 hommes, 14 femmes; âgés de moins de 30 ans jusqu'à plus de 50 ans) ont été traités avec des inhalations d'aérosol d'une solution aqueuse à 2-5% de chlorure de calcium. Le nombre d'inhalations variait de moins de 10 (24 patients) jusqu'à plus de 30 (2 patients). Plusieurs patients ont rapporté une irritation des membranes muqueuses du pharynx et de la gorge et une sensation déplaisante dans la bouche déjà après les premières inhalations. Toutefois la fréquence de tels cas a été décrite comme mi-neure par les auteurs. Dans l'ensemble, une inhalation de chlorure de calcium aurait des effets bénéfiques sur les symptômes de la maladie.

12: Informations écologiques

12.1 Toxicité

Le chlorure de calcium n'est pas classé comme dangereux pour l'environnement.

Le calcium et le chlorure sont normalement présents dans les ions de tout l'écosystème et leurs rejets dans l'environnement ne devraient pas avoir d'effets négatifs à long terme. De grandes quantités d'ions de chlorure pourraient toutefois provoquer des perturbations locales et des dégâts dans un environnement sensible.

Toxicité aiguë

Poisson (Pimephales promelas) LC50 (96 h): 4630 mg/L

LC50 (48 h): > 6560 mg/L

LC50 (24 h): > 6660 mg/L

Méthode: autre: EPA/600/4-90/027, EPA/600/6-91/003

Crustacés (Daphnia magna) LC50 (48 h): 2400 mg/L basée sur: mobilité (statique OECD 202)

Algues (Algae): *Selenastrum capricornutum* (nouveau nom: *Pseudokirchneriella subcapitata*)

EC50 (72 h): 2900 mg/L basée sur: biomasse

EC50 (72 h): > 4000 mg/L basée sur: taux de croissance

EC20 (72 h): 1000 mg/L basée sur: biomasse

OECD Guideline 201 – Alga, Growth Inhibition Test (OECD Lignes

directrices 201 (Algue, essai d'inhibition de la croissance))

Algues; algae/cyanobacteria: *Pseudokirchneriella subcapitata* (comme *Selenastrum capricornutum*.

EC50 (72 h) 2,9 et EC20 1,0 mg/L, OECD guideline 201 (OECD Lignes directrices 201).

Toxicité à long terme

Poisson: Aucune étude fiable n'est disponible.

Crustacés (*Daphnia magna*): EC50 (21 d): 610 mg/L basée sur: troubles de la reproduction

EC16 (21 d): 320 mg/L basée sur: troubles de la reproduction

LC50 (21 d): 920 mg/L basée sur: mortalité

Méthode pas mentionnée

Algues: EC10/LC10 ou NOEC pour les algues d'eau douce: 1000 mg/L

Organismes terrestres

Le chlorure de calcium est dissocié en ions de calcium et de chlorure et les ions de chlorure ne seront pas adsorbés sur les particules. Les ions de calcium peuvent se lier aux particules ou former des sels inorganiques stables avec les ions de sulfate et de carbonate, mais le calcium est présent naturellement dans le sol. Par conséquent, les effets indésirables de l'exposition du compartiment de sol sont peu probables.

Plantes

Le calcium est bien connu comme un nutriment essentiel pour les plantes les plus hautes et il a un rôle important pour la formation de la paroi cellulaire, la division cellulaire et l'élongation des cellules. Le chlorure est un micronutriment essentiel pour les plantes et a un rôle important dans la régulation de la pression osmotique des cellules (SIDS, 2002).

Cependant des doses élevées pourraient nuire aux plantes sensibles

Dans une étude, des érables à sucre (*Acer saccharum*) ont été exposés au ruissellement de chlorure de sodium et de chlorure de calcium durant 6 hivers (traitement total de 11.2 tonnes /ha par traitement et 15 traitements par hiver à des intervalles hebdomadaires, équivalant 11.2 kg/m² au total et 1.87 kg/m² en une saison).

Résultats: Des dommages à la végétation en bordure de route ont été signalés et sont largement attribués à l'absorption de sel projeté sur les feuilles. Les feuilles de ces érables contenaient 3 à 6 fois les concentrations de chlorure comparé à celle d'un échantillon de contrôle. Les dommages aux érables variaient mais pourraient être corrélés avec la concentration en chlorure dans les feuilles.

Une étude sur le terrain avec des épinettes (*Picea sp.*) a été menée pendant dix semaines au cours d'une saison d'hiver et une dose totale de 1.5 kg/m² NaCl, CaCl₂ ou un mélange 75/25 NaCl/CaCl₂.

En présence de chlorure de calcium, l'absorption de Cl⁻ dans la racine a été inhibée. Les effets du chlorure de calcium sont présents, mais ils dépendent de la quantité de Cl⁻ accumulée.

Effets sur les micro-organismes vivant dans les stations d'épuration des eaux usées

Aucune étude n'est disponible. Le calcium joue un rôle crucial dans le renforcement des parois cellulaires. Le chlorure est également un oligoélément essentiel pour les bactéries et a un rôle important dans la photosynthèse et l'osmo-régulation. Aucun effet indésirable n'est suspecté pour les micro-organismes vivant dans les stations d'épuration des eaux usées.

12.2 Persistance et dégradabilité

Conformément à la colonne 2 de l'annexe VII de REACH, il n'est pas nécessaire de procéder à un essai de biodégradabilité car la substance est inorganique.

12.3 Potentiel de bioaccumulation

Le chlorure de calcium est facilement dissocié en ions de calcium et ions de chlorure et les deux sont des constituants essentiels du corps de tous les animaux. Aucune bioaccumulation ou bioamplification n'est attendue pour le chlorure de calcium.

12.4 Mobilité dans le sol

Le chlorure de calcium est dissocié en ions de calcium et de chlorure et les ions de chlorure ne seront pas adsorbés sur les particules. Le ion de calcium peut se lier aux particules du sol et peut former des sels inorganiques stables avec les ions de sulfate et de carbonate, mais le calcium est naturellement présent dans le sol.

12.5 Résultats de l'évaluation PBT et vPvB

Non applicable pour une substance inorganique. Conformément à l'annexe XIII du règlement 1907/2006/EC REACH les substances inorganiques ne sont pas soumises à une évaluation PBT.

12.6 Autres effets nocifs

Aucun spécifique.

13: Considérations relatives à l'élimination

13.1	Méthode de traitement des déchets	<p>Produit Si le recyclage ou la réutilisation n'est pas faisable, alors le produit doit être éliminé conformément aux réglementations locales, départementales ou nationales. Une manière approuvée d'élimination est l'enfouissement ou l'émission contrôlée dans un grand récipient avec des émissions naturelles de calcium et de chlorure, comme la mer. Ne pas jeter avec des acides ou de forts agents réducteurs ou oxydants.</p> <p>Emballage Si le recyclage ou la réutilisation n'est pas faisable, alors le matériel d'emballage doit être éliminé conformément avec la réglementation locale, départementale ou nationale. Nettoyer le matériel d'emballage avec de l'eau et éliminer l'eau conformément aux réglementations locales. L'emballage (le matériel d'emballage) peut être incinéré dans une usine avec un permis des autorités compétentes.</p>
	Codes de déchets (EWC, Waste codes)	Dépend de où les déchets ont été générés. Le chlorure de calcium a une large utilisation dispersive dans de nombreux domaines et tous les codes pertinents peuvent être donnés dans cette MSDS.
	Le produit est classé comme déchet dangereux	Non
	Codes de déchets (EWC) pour le container	15 01 02 (emballage plastique); 15 01 05 (grands sacs d'emballage composite)
	Un container pas nettoyé soigneusement est considéré comme déchet dangereux	Non
	Autres informations	Voir rubrique 8 pour l'équipement de protection personnelle lors de la manipulation de déchets du produit.

14: Informations relatives au transport

	Généralités	Pas réglementé comme produit dangereux.
14.1	Numéro ONU	-
14.2	Nom Propre de Transport ONU	-
14.3	Classe(s) de danger de transport	-
14.4	Groupe d'emballage	-
14.5	Danger environnemental	-
14.6	Précautions spéciales pour l'utilisateur	-
14.7	Transport en vrac conformément à l'Annexe II de MARPOL 73/78 et des code IBC code	-

15: Informations réglementaires

- 15.1 Régulations / législation relatives à la Sécurité, Santé et Environnement spécifiques pour la substance ou des mélanges
Voir EH44 POUSSIÈRE: PRINCIPES GÉNÉRAUX DE PROTECTION (GENERAL PRINCIPLES OF PROTECTION)
- 15.2 Évaluation de la sécurité chimique
L'évaluation de la sécurité chimique est réalisée pour le chlorure de calcium conformément à l'article 14 dans REACH.

16: Autres informations

Cette MSDS est modifiée dans les rubriques suivantes:

Cette MSDS est entièrement révisée conformément aux réglementations CLP et REACH et modifiée dans plusieurs rubriques avec le résultat de l'évaluation de la sécurité chimique dans l'enregistrement REACH. Cette MSDS remplace toutes les éditions précédentes.

Déclaration de danger et de précaution de la rubrique 2 et 3 dans le texte intégral (CLP):

H314: Provoque de graves brûlures de la peau et des lésions oculaires.

H319: Provoque une sévère irritation des yeux.

P280: Porter des gants de protection/vêtements de protection/protection pour les yeux/protection faciale.

P305+P351: SI DANS LES YEUX: Rincer soigneusement avec de l'eau Durant plusieurs minutes.

P337+P313: Si l'irritation oculaire persiste: Consulter un médecin.

Catégories de danger de la rubrique 2 et 3 dans le texte intégral selon la DSD 67/548/EEC.

Xi = Irritant (Irritating)

C = Corrosif (Corrosive)

Phrases de Risques et Sécurité de la rubrique 2 et 3 dans le texte intégral DSD 67/548/EEC:

R34: Provoque des brûlures

R36: Irritant pour les yeux

Sources pour les données de cette MSDS

- Dossier d'enregistrement conformément à la réglementation REACH (Registration dossier according to the REACH regulation)
- ESIS (Agence européenne d'information sur les substances chimiques = European Chemical Substances Information System)
- Guide de sélection rapide pour les vêtements de protection chimique, Krister Forsberg (Quick Selection Guide to Chemical Protective Clothing, Krister Forsberg)
- Vinnikov PL, Slepova RI, Sataev IF (1962). Inhalation d'aérosols de chlorure de calcium en thérapie complexe de tuberculose pulmonaire. *Kazan Med Zh.*, 4, 7-9. (Vinnikov PL, Slepova RI, Sataev IF (1962). Inhalation of calcium chloride aerosols in complex therapy of pulmonary tuberculosis. *Kazan Med Zh.*, 4, 7-9.)
- OECD SIDS Rapport d'Evaluation Initiale, Oct. 2002, Chlorure de Calcium (OECD SIDS Initial Assessment Report, Oct. 2002. Calcium chloride).

Autres informations:

Donner aux employés une formation de base pour prévenir/minimiser les expositions lorsqu'ils manipulent le produit.

Les conseils de prudence sont choisis en fonction de l'article 28 du règlement CLP 1272/2008. Les conseils de prudence pour un Irritant Oculaire Catégorie 2 ne sont pas obligatoires et peuvent varier en fonction de la forme du chlorure de calcium qui est mis sur le marché. Le déclarant ne juge pas nécessaire d'utiliser la mention "P264: Laver ... soigneusement après manipulation" et "P338: Enlever les lentilles de contact, si présentes et faciles à faire. Continuer à rincer." La classification CLP complètement acceptée et l'étiquetage donné dans la proposition conjointe dans la rubrique 2.1 IUCLID. Normalement le déclarant utilise seulement les déclarations de précaution dans l'étiquetage (voir rubrique 2 de cette MSDS):

P280: Porter des gants de protection/vêtements de protection/protection pour les yeux/protection faciale.

P305+P351: SI DANS LES YEUX: Rincer soigneusement avec de l'eau Durant plusieurs minutes.

P337+P313: Si l'irritation oculaire persiste: Consulter un médecin.

Les autres déclarations de précaution (P 264 et P338) sont communiqués dans la rubrique 4 "Mesures de premiers secours" et dans les ES à cette MSDS élargie.

La fiche de données de sécurité (MSDS) est basée sur la réglementation REACH EC 1907/2006 et la réglementation Communautaire UE 453/2010.

Classification selon la réglementation CLP EC 1272/2008 ainsi que la directive 67/548/EEC.

Les noms dans la rubrique 3 sont donnés selon les substances de la classification harmonisée dans l'Annexe VI, réglementation CLP EC/1272/2008. Voir article 18 dans la réglementation CLP.

Calcium chloride: Final Exposure Scenarios in the e-SDS format

20th December 2010, TNO Quality of Life

On the next pages the Calcium Chloride Exposure Scenarios (ES) in the e-SDS format are presented.

ES	Life cycle stage	Calcium chloride
2	Industrial end use	ES 2: Use of calcium chloride as chemical intermediate
3	Formulation	ES 3: Formulation and/or distribution of Calcium Chloride
4	Industrial end use	ES 4: Use of calcium chloride as processing aid
5	Industrial end use	ES 5: Industrial outdoor use of calcium chloride-end use
6	Professional end use	ES 6: Professional indoor use of calcium chloride
7	Professional end use	ES 7: Professional outdoor use of calcium chloride
8	Industrial and professional end use	ES 8: Handling of (aqueous) calcium chloride
9	Industrial and professional end use	ES 9: Handling of calcium chloride with low dustiness
10	Consumer end use	ES 10: Use of calcium chloride by consumers

Prior to the description of the exposure scenarios an explanatory note is given for the customer, in order to get used to the terminology used.

Explanatory note for the customer:

The REACH exposure scenario hereunder is the summary of the results of the Chemical Safety Assessment of the substance that has been performed by the supplier. The operational conditions and risk management measures in the exposure scenario allow you to work safely with the substance.

Note to section 1: processes tasks, activities covered:

The process categories (PROC) given in the exposure scenario cover those identified uses that the supplier considers as being typically applied in the industry sector of the customer (so called “common practice”).

They may be consecutive activities in the processing of the substance by the customer and may thus be considered as contributing scenario's in the total activity of the customer.

In the chemical safety assessment these processes categories were used as a starting point for the assessment.

Note to Section 2.1: under contributing scenario's:

For each process category (PROC), the risk management measures (RMM, in the right column) mentioned, are recommended to be applied in order to guarantee safe use during that specific (process) activity.

Note to Section 2.2: control of environmental exposure:

The chemical safety assessment of the emission of substances to the environment (waste water, air and soil) during the supplier's activity aims at defining conditions and risk management measures that should be implemented to guarantee absence of adverse effects in one or more of the environmental compartments (e.g. water, air and/or soil).

The following operational conditions mentioned under “control of environmental exposure” are preset or estimated values (based on best knowledge or on official guidance documents in environmental risk assessment):

- Amounts used
- Frequency and duration of use
- Environmental factors not influenced by risk management
- Other given operational conditions affecting environmental exposure

The implemented risk management measures (RMM) are based on these preset conditions. The customer should therefore check if the preset conditions apply to his local situation and conditions. If his local conditions differ from the preset conditions, the customer should adapt the preset values to his specific situation and recalculate the emissions to the environment (e.g. with the aid of EUSES) and compare the new predicted environmental concentrations (PECs) with the PNECs of the substance.

Exposure scenario 2: Use of calcium chloride as chemical intermediate

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Use of Calcium Chloride as chemical intermediate; CAS: 10043-52-4
Sectors of use	<p>Industrial:</p> <ul style="list-style-type: none"> ▪ SU8: Manufacture of bulk, large scale chemicals (including petroleum products) ▪ SU9: Manufacture of fine chemicals ▪ SU14: Manufacture of basic metals, including alloys <p>(The following additional sectors of use are considered to be covered by the main sectors of use mentioned above:</p> <ul style="list-style-type: none"> ▪ SU1: Agriculture, forestry, fishery ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ SU4: Manufacture of food products ▪ SU5: Manufacture of textiles, leather, fur ▪ SU6b: Manufacture of pulp, paper and paper products)
Process categories	<ul style="list-style-type: none"> ▪ 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 (syn-thesis) 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 ▪ PROC22a / 22b: Potentially closed processing operations with minerals/metals at elevated temperature: $p_t \leq m_t$ – low / medium fugacity. Industrial setting. ▪ PROC22c: Potentially closed processing operations with minerals/metals at elevated temperature: $p_t > m_t$ - high fugacity. Industrial setting. ▪ PROC23a / 23b: Open processing and transfer operations with minerals/metals at elevated temperature: $p_t \leq m_t$ – low / medium fugacity ▪ PROC23c: Open processing and transfer operations with minerals/metals at elevated temperature: $p_t > m_t$ - high fugacity
Environmental Release Categories	<ul style="list-style-type: none"> ▪ ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
Processes, tasks, activities covered	Use of Calcium Chloride as chemical intermediate. Use as an intermediate. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities.
Section 2.	Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1.	Control of worker exposure
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>

Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
<u>PROC1:</u> General exposures [CS1]. With sample collection [CS56].	No specific measures identified [E118].
<u>PROC2:</u> General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [E118].
<u>PROC3:</u> General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [E118].
<u>PROC4:</u> General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC6:</u> Calendering (including Banburys) [CS64]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8b:</u> Process sampling [CS2]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8a:</u> Process sampling [CS2]. Non-dedicated facility [CS82].	Avoid carrying out operation for more than 1 hour [OC11]
<u>PROC9:</u> Drum/batch transfers [CS8]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC15:</u> Laboratory activities [CS36].	No specific measures identified [E118].
<u>PROC8a:</u> Bulk open loading and unloading [CS503].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or:

Non-dedicated facility [CS82]	Wear a respirator conforming to EN143 with Type P2 filter or better [].			
<u>PROC8b:</u> Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
<u>PROC8a:</u> Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
<u>PROC22a / 22b:</u> General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature \leq melting point of substance []	No specific measures identified [E118].			
<u>PROC22c:</u> General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature $>$ melting point of substance []	Provide extract ventilation to points where emissions occur [E54], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
<u>PROC23a / 23b:</u> Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature \leq melting point of substance []	No specific measures identified [E118].			
<u>PROC23c:</u> Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature $>$ melting point of substance []	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
<u>PROC1:</u> Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [E118].			
<u>PROC2:</u> Storage [CS67]. With sample collection [CS56].	No specific measures identified [E118].			
Section 2.2.	Control of environmental exposure			
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 3.	Exposure Estimation			
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m³)	RCR inhalation	Inhalation exposure – event exposure (mg/m³)	RCR (inhalation)
PROC1- General exposures [CS1]. With sample collection [CS56].	0.01	<0.01	0.02	<0.01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in	1.00	0.20	2.00	0.20

contained batch processes [CS37].				
PROC4 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70
PROC8b - Process sampling [CS2]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82]	1.00	0.20	2.00	0.20
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a- Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	4.00	0.80	8.00	0.80
PROC22a / 22b - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature \leq melting point of substance [].	3.00	0.60	6.00	0.60
PROC22c - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature $>$ melting point of substance [].	1.00	0.20	2.00	0.20
PROC23a / 23b - Material transfers [CS3]. Open systems [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature \leq melting point of substance [].	3.00	0.60	6.00	0.60
PROC23c - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature $>$ melting point of substance [].	3.00	0.60	6.00	0.60
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.		Guidance to check compliance with the Exposure Scenario		
4.1. Health				



Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure scenario 3: Formulation and/or distribution of calcium chloride

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Formulation and/or distribution of Calcium Chloride; CAS: 10043-52-4
Sectors of use	<p>Industrial:</p> <ul style="list-style-type: none"> ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) <p>(The following additional sectors of use are considered to be covered by the main sector of use mentioned above:</p> <ul style="list-style-type: none"> ▪ SU1: Agriculture, forestry, fishery ▪ SU2: Mining and offshore industries ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ 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) ▪ 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- C23.5/ C23.6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	<ul style="list-style-type: none"> ▪ 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 tableting, compression, extrusion, pelletisation ▪ PROC15: Use as laboratory reagent
Environmental release categories	<ul style="list-style-type: none"> ▪ ERC2: Formulation of preparations
Processes, tasks, activities covered	<p>Formulation and distribution, packing and re-packing (including drums and small packs) of the Calcium Chloride and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, loading (including marine vessel/barge, rail/road car and IBC loading), maintenance and associated laboratory activities. e.g. production of adsorbents, cosmetics, metals, fertilizers, plant protection, cement, haemodialysis solution and general distributor activities with Calcium Chloride</p>
Section 2.	Operational conditions and risk management measures

<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1.	Control of worker exposure
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2]
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15]; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures , 4. Personal protection.</i>
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
<u>PROC1:</u> General exposures [CS1]. Continuous process [CS54].	No specific measures identified [E118].
<u>PROC2:</u> General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [E118].
<u>PROC3:</u> General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [E118].
<u>PROC5:</u> Mixing operations (open systems) [CS30].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC6:</u> Calendering (including Banburys) [CS64]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8a:</u> Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8b:</u> Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC9:</u> Drum/batch transfers [CS8]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].

PROC14: Tabletting, compression, extrusion or pelletisation [CS506].	No specific measures identified [E118].			
PROC15: Laboratory activities [CS36].	No specific measures identified [E118].			
PROC8b: Process sampling [CS2]. Dedicated facility [CS81]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
PROC8a: Process sampling [CS2]. Non-dedicated facility [CS82].	Avoid carrying out operation for more than 1 hour [OC11].			
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [E118].			
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [E118].			
Section 2.2.	Control of environmental exposure			
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 3.	Exposure Estimation			
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m ³)	RCR inhalation	Inhalation exposure – event exposure (mg/m ³)	RCR (inhalation)
PROC1 - General exposures [CS1]. Continuous process [CS54].	0.01	<0,01	0.02	<0,01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in contained batch processes [CS37].	1.00	0.20	2.00	0.20
PROC5 - Mixing operations (open systems) [CS30].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC14 - Tabletting, compression, extrusion or pelletisation [CS506].	1.00	0.20	2.00	0.20

PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8b - Process sampling [CS2]. Dedicated facility [CS81].	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82].	1.00	0.20	2.00	0.20
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	4.00	0.80	8.00	0.80
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	0.50	0.10	1.00	0.10
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.		Guidance to check compliance with the Exposure Scenario		
4.1. Health				
Guidance to DU		<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>		
4.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 5.				
Control of Worker Exposure				
None				
Control of environmental exposure				
None.				

Exposure scenario 4: Use of calcium chloride as processing aid

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Use of Calcium Chloride as processing aid; CAS: 10043-52-4
Sectors of use	<p>Industrial:</p> <ul style="list-style-type: none"> ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites <p>(The following additional sectors of use are considered to be covered by the main sector of use mentioned above:</p> <ul style="list-style-type: none"> ▪ SU1: Agriculture, forestry, fishery ▪ SU2a: Mining (without 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 ▪ SU10: 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	<ul style="list-style-type: none"> ▪ 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 (syn-thesis) 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 ▪ PROC22a / 22b: Potentially closed processing operations with minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity. Industrial setting. ▪ PROC22c: Potentially closed processing operations with minerals/metals at elevated temperature: pt > mt - high fugacity. Industrial setting. ▪ PROC23a / 23b: Open processing and transfer operations with

	minerals/metals at elevated temperature: pt ≤ mt – low / medium fugacity
	* PROC23c: Open processing and transfer operations with minerals/metals at elevated temperature: pt > mt - high fugacity
Environmental release categories	* ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities covered	Use of Calcium Chloride as processing aid. Use as a process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, maintenance and loading (including marine vessel/barge, road/rail car and bulk container), sampling and associated laboratory activities. E.g. functions as adsorbent, coagulant, emulsion breaker, alginates, extraction agent, completion fluid, heat transfer fluid, water treatment chemical or use within the paper industry for example as antistatic.
Section 2.	Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1.	Control of worker exposure
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2].
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC1: General exposures [CS1]. Continuous process [CS54].	No specific measures identified [E118].
PROC2: General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	No specific measures identified [E118].
PROC3: General exposures [CS1]. Use in contained batch processes [CS37].	No specific measures identified [E118].
PROC4: General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].

<p><u>PROC6:</u> Calendering (including Banburys) [CS64]</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC7:</u> Spraying [CS10].</p>	<p>Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC8a:</u> Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC8b:</u> Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC9:</u> Drum/batch transfers [CS8]. Transport [CS58].</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC10:</u> Rolling, Brushing [CS51].</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC13:</u> Dipping, immersion and pouring [CS4].</p>	<p>No specific measures identified [E118].</p>
<p><u>PROC15:</u> Laboratory activities [CS36].</p>	<p>No specific measures identified [E118].</p>
<p><u>PROC8a:</u> Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]</p>	<p>Drain or remove substance from equipment prior to break-in or maintenance [E81], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC8b:</u> Process sampling [CS2]. Dedicated facility [CS81]</p>	<p>Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC8a:</u> Process sampling [CS2]. Non-dedicated facility [CS82]</p>	<p>Avoid carrying out operation for more than 4 hours [OC12].</p>
<p><u>PROC22a / 22b:</u> General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature \leq melting point of substance [].</p>	<p>No specific measures identified [E118].</p>
<p><u>PROC22c:</u> General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature $>$ melting point of substance [].</p>	<p>Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].</p>
<p><u>PROC23a / 23b:</u> Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature \leq melting point of substance [].</p>	<p>No specific measures identified [E118].</p>

PROC23c: Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature > melting point of substance [].	Provide a good standard of controlled ventilation (10 to 15 air changes per hour) [E40], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].			
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [E118].			
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [E118].			
Section 2.2.	Control of environmental exposure			
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 3.	Exposure Estimation			
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m³)	RCR inhalation	Inhalation exposure – event exposure (mg/m³)	RCR (inhalation)
PROC1 - General exposures [CS1]. Continuous process [CS54].	0.01	<0.01	0.02	<0.01
PROC2 - General exposures [CS1]. Continuous process [CS54]. With sample collection [CS56].	0.50	0.10	1.00	0.10
PROC3 - General exposures [CS1]. Use in contained batch processes [CS37].	1.00	0.20	2.00	0.20
PROC4 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	3.50	0.70	7.00	0.70
PROC6 - Calendering (including Banburys) [CS64]	3.50	0.70	7.00	0.70
PROC7 - Spraying [CS10].	2.00	0.40	4.00	0.40
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81].	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC13 - Dipping, immersion and pouring [CS4].	1.00	0.20	2.00	0.20
PROC15 - Laboratory activities [CS36].	0.50	0.10	1.00	0.10
PROC8a - Equipment cleaning and maintenance	4.00	0.80	8.00	0.80

[CS39]. Non-dedicated facility [CS82].				
PROC8b - Process sampling [CS2]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC8a - Process sampling [CS2]. Non-dedicated facility [CS82]	1.00	0.20	2.00	0.20
PROC22a / 22b - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature \leq melting point of substance [].	3.00	0.60	6.00	0.60
PROC22c - General exposures (closed systems) [CS15]. Elevated temperature [CS111]. Process temperature $>$ melting point of substance [].	3.00	0.60	6.00	0.60
PROC23a / 23b - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature \leq melting point of substance [].	3.00	0.60	6.00	0.60
PROC23c - Material transfers [CS3]. (open systems) [CS108]. Batch processes at elevated temperatures [CS136]. Process temperature $>$ melting point of substance [].	3.00	0.60	6.00	0.60
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.01	<0.01	0.02	<0.01
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	0.50	0.10	1.00	0.10
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.		Guidance to check compliance with the Exposure Scenario		
4.1. Health				
Guidance to DU		<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>		
4.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 5.				
Control of Worker Exposure				
None				



Control of environmental exposure

None.

Exposure scenario 5: Industrial outdoor use of calcium chloride - end use

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	ES5: Industrial outdoor use of Calcium Chloride; CAS: 10043-52-4
Sectors of use	<p>Industrial:</p> <ul style="list-style-type: none"> SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites <p>(The following additional sectors of use are considered to be covered by the main sector of use mentioned above:</p> <ul style="list-style-type: none"> SU1: Agriculture, forestry, fishery SU2a: Mining and offshore industries)
Process categories	<ul style="list-style-type: none"> 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 (in this ES: Spreading) PROC19: Hand-mixing with intimate contact and only PPE available
Environmental Release Categories	<ul style="list-style-type: none"> ERC4: Industrial use of processing aids in processes and products, not becoming part of articles
Processes, tasks, activities covered	Industrial outdoor use of Calcium Chloride. Covers the end use of Calcium chloride either pure or in formulation by spreading, spraying and pouring. Including storage, materials transfers, mixing, loading and maintenance. E.g. the use of dust suppression - and de-icing- mixtures.
Section 2.	Operational conditions and risk management measures
<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1.	Control of worker exposure
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1]. Outdoor [OC9].
Contributing Scenarios	Risk Management Measures
	<i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>

General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC5: Mixing operations (open systems) [CS30].	No specific measures identified [E118].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	No specific measures identified [E118].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	No specific measures identified [E118].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	No specific measures identified [E118].
PROC7: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
PROC7: Spraying [CS10].	Avoid carrying out operation for more than 1 hour [OC11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
PROC13: Spreading [] Large surfaces [CS46].	No specific measures identified [E118].
PROC19: Mixing operations (open systems) [CS30]. Manual [CS34].	No specific measures identified [E118].
PROC19: Spreading [] Manual [CS34].	No specific measures identified [E118].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	No specific measures identified [E118].
PROC1: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [E118].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [E118].
Section 2.2.	Control of environmental exposure
Product characteristics	
Substance is a unique structure [PrC1].	
Inorganic substance [].	
Contributing scenario	De-icing agent, application as a mixture of 70% NaCl and 30% of a 20% solution of CaCl2
Amounts used	
Annual tonnage of road salt	1.5 tonnes/km
Fraction of CaCl2 in road salt	0.06
Annual tonnage of CaCl2	0.09 tonnes/km

Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [].	
Contributing scenario	De-icing agent, application as liquid CaCl₂ brine (max. 35% solution)
Amounts used	
Annual tonnage of road salt	0.8 tonnes/km
Fraction of CaCl ₂ in road salt	0.35
Annual tonnage of CaCl ₂	0.28 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [].	
Contributing scenario	De-icing agent, application as solid CaCl₂ (up to 100%)
Amounts used	
Annual tonnage of road salt	0.25 tonnes/km
Fraction of CaCl ₂ in road salt	1
Annual tonnage of CaCl ₂	0.25 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	

Use in open systems [].

Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1

Conditions and measures related to municipal sewage treatment plant Not applicable as there is no release to wastewater [STP1].

Other environmental control measures additional to above

Avoid spilling salt directly onto plants [].

Contributing scenario	Dust suppressor, application as solid CaCl₂ (up to 80%)
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl ₂ in road salt	0.8
Annual tonnage of CaCl ₂	2.4 tonnes/km

Frequency and duration of use

Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3

Environmental factors not influenced by risk management

Spreading width (m): 10

Other Operational Conditions of use affecting environmental exposure Outdoor use [OOC1].

Use in open systems [].

Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1

Conditions and measures related to municipal sewage treatment plant Not applicable as there is no release to wastewater [STP1].

Other environmental control measures additional to above

Avoid spilling salt directly onto plants [].

Contributing scenario	Dust suppressor, application as CaCl₂ solution (up to 37%)
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl ₂ in road salt	0.37
Annual tonnage of CaCl ₂	1.11 tonnes/km

Frequency and duration of use

Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3

Environmental factors not influenced by risk management

Spreading width (m): 10

Other Operational Conditions of use affecting environmental exposure Outdoor use [OOC1].

Use in open systems [].

Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1

Conditions and measures related to municipal sewage treatment plant Not applicable as there is no release to wastewater [STP1]. Other environmental control measures additional to above Avoid spilling salt directly onto plants [].				
Section 3.		Exposure Estimation		
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m³)	RCR inhalation	Inhalation exposure – event exposure (mg/m³)	RCR (inhalation)
PROC5 - Mixing operations (open systems) [CS30].	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC7 - Spraying [CS10].	2.00	0.40	4.00	0.40
PROC7 - Spraying [CS10]. Outdoor	2.80	0.56	5.60	0.56
PROC13 - Spreading [] Large surfaces [CS46].	0.70	0.14	1.40	0.14
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70
PROC19 - Spreading [] Manual [CS34].	3.50	0.70	7.00	0.70
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	<0.01	<0.01	0.01	<0.01
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	<0.01	<0.01	0.01	<0.01
3.2. Environment				
Used EUSES model [EE4].				
Deposition of calcium chloride onto soil in low to medium traffic areas.				
Application	Deposition volume (g/m²)		RCR	
De-icing agent, application as 70% NaCl and 30% CaCl ₂ solution	9		0.060	
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	28.0		0.187	
De-icing agent, application as solid calcium chloride (up to 100%)	25.0		0.167	
Dust suppressor, application as solid calcium	100		0.667	

chloride (up to 80%)		
Dust suppressor, application as calcium chloride solution (up to 37%)	111	0.740

Deposition volumes onto soil in high traffic areas.

Application	Deposition volume (g/m ²)	RCR
De-icing agent, application as 70% NaCl and 30% CaCl ₂ solution	45	0.300
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	140	0.933
De-icing agent, application as solid calcium chloride (up to 100%)	125	0.833

Section 4. Guidance to check compliance with the Exposure Scenario

4.1. Health

Guidance to DU	<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>
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4.2. Environment

If scaling reveals a condition of unsafe use (i.e., RCRs > 1), additional RMMs or a site-specific chemical safety assessment is required [DSU8].

Section 5.

Control of Worker Exposure

None

Control of environmental exposure

None.

Exposure Scenario 6: Professional indoor use of calcium chloride

Section 1	
Exposure Scenario Title	
Title	ES6: Professional indoor use of Calcium Chloride; CAS: 10043-52-4
Sectors of use	<p>Professional:</p> <ul style="list-style-type: none"> ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) <p>(The following additional sectors of use are considered to be covered by the main sector of use mentioned above:</p> <ul style="list-style-type: none"> ▪ SU1: Agriculture, forestry, fishery ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU19: Manufacture of rubber products ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	<ul style="list-style-type: none"> ▪ 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 (syn-thesis) 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 ▪ 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	<ul style="list-style-type: none"> ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Professional use of CaCl ₂ . Covers the end use of Calcium chloride either pure or in formulation including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and by spraying, brushing, dipping, wiping automated and by hand. E.g. the use of, washing and cleaning products or use as heat transfer fluid.
Section 2	
Operational conditions and risk management measures	
<i>Field for additional statements to explain scenario if required.</i>	
Section 2.1	
Control of worker exposure	
Product characteristics	
Physical form of product	Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>

Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].
Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
<u>PROC3:</u> General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC4:</u> Application of cleaning products in closed systems [CS101] With sample collection [CS56]. Filling / preparation of equipment from drums or containers. [CS45].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC5:</u> Mixing operations (open systems) [CS30].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8a:</u> Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC8b:</u> Bulk closed loading and unloading [CS501]. Dedicated facility [CS81].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC9:</u> Pouring from small containers [CS9]. Transport [CS58].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC10:</u> Rolling, Brushing [CS51].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].

<u>PROC11:</u> Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC19:</u> Mixing operations (open systems) [CS30]. Manual [CS34].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC19:</u> Manual spot cleaning (e.g. textiles etc) [CS52].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC20:</u> Heat and pressure transfer fluids (closed systems) in dispersive use [].	No specific measures identified [EI18].
<u>PROC8a:</u> Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC15:</u> Laboratory activities [CS36].	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour) [E11]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
<u>PROC1:</u> Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [EI18].
<u>PROC2:</u> Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [EI18].
Section 2.2.	Control of environmental exposure

Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 3.		Exposure Estimation			
3.1. Health					
PROC no.		Inhalation exposure – long term (mg/m ³)	RCR inhalation	Inhalation exposure – event exposure (mg/m ³)	RCR (inhalation)
PROC3 - General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].		3.50	0.70	7.00	0.70
PROC4 - Application of cleaning products in closed systems [CS101]. With sample collection [CS56]. Filling / preparation of equipment from drums or containers [CS45].		3.50	0.70	7.00	0.70
PROC5 - Mixing operations (open systems) [CS30].		3.50	0.70	7.00	0.70

PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Pouring from small containers [CS9]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC11 - Spraying [CS10].	4.00	0.80	8.00	0.80
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70
PROC19 - Manual spot cleaning (e.g. textiles etc) [CS52].	3.50	0.70	7.00	0.70
PROC20 - Heat and pressure transfer fluids (closed systems) in dispersive use [].	1.00	0.20	2.00	0.20
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82].	3.50	0.70	7.00	0.70
PROC15 - Laboratory activities [CS36].	3.50	0.70	7.00	0.70
PROC1 - Storage [CS67]. General exposures (closed systems) [CS15].	0.10	0.02	0.20	0.02
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	1.00	0.20	2.00	0.20
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.		Guidance to check compliance with the Exposure Scenario		
4.1. Health				
Guidance to DU		<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>		
4.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 5.				
Control of Worker Exposure				
None				
Control of environmental exposure				
None.				

Exposure scenario 7: Professional outdoor use of calcium chloride

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Professional outdoor use of calcium chloride; CAS: 10043-52-4
Sectors of use	<p>Professional:</p> <ul style="list-style-type: none"> ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) <p>(The following additional sectors of use are considered to be covered by the main sector of use mentioned above:</p> <ul style="list-style-type: none"> ▪ SU1: Agriculture, forestry, fishery ▪ SU5: Manufacture of textiles, leather, fur ▪ SU10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys) ▪ SU13: Manufacture of other non-metallic mineral products, e.g. plasters, cement ▪ SU19: Manufacture of rubber products ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	<ul style="list-style-type: none"> ▪ 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) ▪ 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 (in this ES also: Spreading) ▪ 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	<ul style="list-style-type: none"> ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
Processes, tasks, activities covered	Professional outdoor use of CaCl ₂ . Covers the end use of Calcium chloride either pure or in formulation including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and by spraying, brushing, dipping, spreading automated and by hand. Including storage, equipment clean-downs and disposal. E.g. the use of agrochemicals, dust suppression- and de-icing- mixtures and the use of cement.
Section 2.	Operational conditions and risk management measures
Section 2.1.	Control of worker exposure
Product characteristics	
Physical form of product	Physical state: Solid, medium dustiness [OC2].
Concentration of substance in product	Covers percentage substance in the product up to 100 %

	(unless stated differently) [G13].
Amounts used	<i>Not applicable.</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1]. Outdoor [OC9].
Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection</i>
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination / spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop [E3]. Use suitable eye protection [PPE26].
PROC5: Mixing operations (open systems) [CS30].	No specific measures identified [E118].
PROC8a: Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82].	No specific measures identified [E118].
PROC8a: Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82].	No specific measures identified [E118].
PROC8b: Bulk closed loading and unloading [CS501]. Dedicated facility [CS81].	No specific measures identified [E118].
PROC9: Drum/batch transfers [CS8]. Transport [CS58].	No specific measures identified [E118].
PROC9: Pouring from small containers [CS9].	No specific measures identified [E118].
PROC10: Rolling, Brushing [CS51].	No specific measures identified [E118].
PROC11: Spraying [CS10].	Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
PROC11: Spraying [CS10].	Avoid carrying out operation for more than 1 hour [OC11], or: Wear a respirator conforming to EN143 with Type P2 filter or better [].
PROC13: Dipping, immersion and pouring [CS4].	No specific measures identified [E118].

PROC13: Spreading [] Large surfaces [CS46].	No specific measures identified [E118].
PROC19: Mixing operations (open systems) [CS30]. Manual [CS34].	No specific measures identified [E118].
PROC19: Spreading [] Manual [CS34].	No specific measures identified [E118].
PROC8a: Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	No specific measures identified [E118].
PROC20: Heat and pressure transfer fluids (closed systems) in dispersive use []	No specific measures identified [E118].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15].	No specific measures identified [E118].
PROC2: Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	No specific measures identified [E118].
Section 2.2.	Control of environmental exposure
Product characteristics	
Substance is a unique structure [PrC1].	
Inorganic substance [].	
Contributing scenario	De-icing agent, application as a mixture of 70% NaCl and 30% of a 20% solution of CaCl₂
Amounts used	
Annual tonnage of road salt	1.5 tonnes/km
Fraction of CaCl ₂ in road salt	0.06
Annual tonnage of CaCl ₂	0.09 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	



Avoid spilling salt directly onto plants [].	
Contributing scenario	De-icing agent, application as liquid CaCl₂ brine (max. 35% solution)
Amounts used	
Annual tonnage of road salt	0.8 tonnes/km
Fraction of CaCl ₂ in road salt	0.35
Annual tonnage of CaCl ₂	0.28 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	
Not applicable as there is no release to wastewater [STP1]. Other environmental control measures additional to above Avoid spilling salt directly onto plants [].	
Contributing scenario	De-icing agent, application as solid CaCl₂ (up to 100%)
Amounts used	
Annual tonnage of road salt	0.25 tonnes/km
Fraction of CaCl ₂ in road salt	1
Annual tonnage of CaCl ₂	0.25 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	25
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant	



Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above Avoid spilling salt directly onto plants [].	
Contributing scenario	Dust suppressor, application as solid CaCl₂ (up to 80%)
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl ₂ in road salt	0.8
Annual tonnage of CaCl ₂	2.4 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1
Conditions and measures related to municipal sewage treatment plant Not applicable as there is no release to wastewater [STP1].	
Other environmental control measures additional to above	
Avoid spilling salt directly onto plants [].	
Contributing scenario	Dust suppressor, application as CaCl₂ solution (up to 37%)
Amounts used	
Annual tonnage of road salt	3 tonnes/km
Fraction of CaCl ₂ in road salt	0.37
Annual tonnage of CaCl ₂	1.11 tonnes/km
Frequency and duration of use	
Type of release	Dispersive use [FD3].
Emission Days (days/year) [FD4]:	3
Environmental factors not influenced by risk management	
Spreading width (m):	10
Other Operational Conditions of use affecting environmental exposure	
Outdoor use [OOC1].	
Use in open systems [].	
Release fraction to air from process (initial release prior to RMM) [OOC4]:	0
Release fraction to wastewater from process (release after RMMs are applied):	0
Release fraction to soil from process (initial release prior to RMM) [OOC6]:	1



Conditions and measures related to municipal sewage treatment plant Not applicable as there is no release to wastewater [STP1]. Other environmental control measures additional to above Avoid spilling salt directly onto plants [].				
Section 3.		Exposure Estimation		
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m ³)	RCR inhalation	Inhalation exposure – event exposure (mg/m ³)	RCR (inhalation)
PROC5 - Mixing operations (open systems) [CS30]	3.50	0.70	7.00	0.70
PROC8a - Bulk open loading and unloading [CS503]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8a - Filling / preparation of equipment from drums or containers. [CS45]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC8b - Bulk closed loading and unloading [CS501]. Dedicated facility [CS81]	3.50	0.70	7.00	0.70
PROC9 - Drum/batch transfers [CS8]. Transport [CS58].	3.50	0.70	7.00	0.70
PROC9 - Pouring from small containers [CS9].	3.50	0.70	7.00	0.70
PROC10 - Rolling, Brushing [CS51].	3.50	0.70	7.00	0.70
PROC11 - Spraying [CS10].	1.40	0.28	2.80	0.28
PROC11 - Spraying [CS10].	2.80	0.56	5.60	0.56
PROC13 - Dipping, immersion and pouring [CS4].	3.50	0.70	7.00	0.70
PROC13 - Spreading [] Large surfaces [CS46].	3.50	0.70	7.00	0.70
PROC19 - Mixing operations (open systems) [CS30]. Manual [CS34].	3.50	0.70	7.00	0.70
PROC19 - Spreading [] Manual [CS34].	3.50	0.70	7.00	0.70
PROC8a - Equipment cleaning and maintenance [CS39]. Non-dedicated facility [CS82]	3.50	0.70	7.00	0.70
PROC20 - Heat and pressure transfer fluids (closed systems) in dispersive use []	0.70	0.14	1.40	0.14
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15].	0.07	0.01	0.14	0.01
PROC2 - Storage [CS67]. General exposures (closed systems) [CS15]. With sample collection [CS56].	0.70	0.14	1.40	0.14
3.2. Environment				
Used EUSES model [EE4].				
Deposition of calcium chloride onto soil in low to medium traffic areas.				
Application	Deposition volume (g/m²)		RCR	
De-icing agent, application as 70% NaCl and	9		0.060	

30% CaCl ₂ solution		
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	28.0	0.187
De-icing agent, application as solid calcium chloride (up to 100%)	25.0	0.167
Dust suppressor, application as solid calcium chloride (up to 80%)	100	0.667
Dust suppressor, application as calcium chloride solution (up to 37%)	111	0.740
Deposition volumes onto soil in high traffic areas.		
Application	Deposition volume (g/m²)	RCR
De-icing agent, application as 70% NaCl and 30% CaCl ₂ solution	45	0.300
De-icing agent, application as liquid calcium chloride brine (max. 35% solution)	140	0.933
De-icing agent, application as solid calcium chloride (up to 100%)	125	0.833
Section 4.		
Guidance to check compliance with the Exposure Scenario		
4.1. Health		
Guidance to DU	<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>	
4.2. Environment		
Not applicable for wide dispersive uses [DSU5].		
Section 5.		
Control of Worker Exposure		
None		
Control of environmental exposure		
None.		

Exposure scenario 8: Handling of aqueous solutions

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Handling of (aqueous) Calcium Chloride solutions ; CAS: 10043-52-4
Sectors of use	<ul style="list-style-type: none"> ▪ SU3: Industrial uses: Uses of substances as such or in preparations* at industrial sites ▪ SU22: Professional uses: Public domain (administration, education, entertainment, services, craftsmen) <p>(The following additional sectors of use are considered to be covered by the main sectors of use mentioned above:</p> <ul style="list-style-type: none"> ▪ 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 ▪ SU10: 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: Manufacture of rubber products ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process Categories	<ul style="list-style-type: none"> ▪ 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 (syn-thesis) where opportunity for exposure arises (contact) ▪ PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) ▪ PROC6: Calendaring 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 ▪ PROC11: Non industrial spraying ▪ PROC13: Treatment of articles by dipping and pouring (in this ES: Spreading) ▪ PROC14: Production of preparations or articles by tableting, compression, extrusion, pelletisation ▪ PROC15: Use as laboratory reagent

Environmental Release Categories	<ul style="list-style-type: none"> ▪ ERC1: Manufacture of substances ERC6a: Industrial use resulting in manufacture of another substance (use of interme-diates) ▪ ERC2: Formulation of prepara-tions ▪ ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems 			
Processes, tasks, activities covered	Handling of (aqueous) solutions containing Calcium Chloride.			
Section 2.		Operational conditions and risk management measures		
<i>Field for additional statements to explain scenario if required.</i>				
Section 2.1		Control of worker exposure		
Product characteristics				
Physical form of product	Liquid, vapour pressure < 10 Pa [OC14].			
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].			
Amounts used	<i>Not applicable</i>			
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]			
Human factors not influenced by risk management	<i>Not applicable</i>			
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15].; Assumes a good basic standard of occupational hygiene is implemented [G1].			
Contributing Scenarios		Risk Management Measures		
		<i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>		
General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposure. Use suitable eye protection [PPE26].			
General measures applicable to all activities [CS135].	No specific measures identified [E118].			
Section 2.2.		Control of environmental exposure		
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 3.		Exposure Estimation		
3.1. Health				
PROC no.	Inhalation exposure – long term (mg/m³)	RCR inhalation	Inhalation exposure – event exposure (mg/m³)	RCR (inhalation)
Reasonable worst case	1.00	0.20	2.00	0.20
3.2. Environment				
Not applicable, as for this intended use the substance is not hazardous for the environment.				
Section 4.		Guidance to check compliance with the Exposure Scenario		
4.1. Health				
Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL			



	when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure Scenario 9: Handling of calcium chloride with low dustiness

ES Annex to the e-SDS	
Section 1.	Exposure Scenario Title
Title	Handling of Calcium Chloride with low dustiness ; CAS: 10043-52-4
Sectors of use	<ul style="list-style-type: none"> ▪ SU3: Industrial uses: Uses of substances as such or in preparations at industrial sites ▪ SU22: Health services <p>(The following additional sectors of use are considered to be covered by the main sectors of use mentioned above:</p> <ul style="list-style-type: none"> ▪ 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 ▪ SU10: 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: Manufacture of rubber products ▪ SU20: Health services ▪ SU0 – C23.5/C23/6: Other: Manufacture of cement, lime and plaster/ Manufacture of articles of concrete, cement and plaster)
Process categories	<ul style="list-style-type: none"> ▪ 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 (syn-thesis) where opportunity for exposure arises (contact) ▪ PROC5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) ▪ PROC6: Calendaring 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 ▪ PROC11: Non industrial spraying ▪ PROC13: Treatment of articles by dipping and pouring (in this ES: Spreading)

Environmental release categories	<ul style="list-style-type: none"> ▪ ERC1: Manufacture of substances ERC6a: Industrial use resulting in manufacture of another substance (use of interme-diates) ▪ ERC2: Formulation of prepara-tions ▪ ERC4: Industrial use of processing aids in processes and products, not becoming part of articles ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems
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Processes, tasks, activities covered	Handling of Calcium Chloride pellets, flakes or other Calcium Chloride with low dustiness or preparations of these.
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Section 2.	Operational conditions and risk management measures
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Field for additional statements to explain scenario if required.

Section 2.1.	Control of worker exposure
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Product characteristics	
Physical form of product	Solid, low dustiness [OC1].
Concentration of substance in product	Covers percentage substance in the product up to 100 % (unless stated differently) [G13].
Amounts used	<i>Not applicable</i>
Frequency and duration of use	Covers daily exposures up to 8 hours (unless stated differently) [G2]
Human factors not influenced by risk management	<i>Not applicable</i>
Other Operational Conditions affecting worker exposure	Assumes use at not more than 20°C above ambient temperature, unless stated differently [G15]. Assumes a good basic standard of occupational hygiene is implemented [G1].

Contributing Scenarios	Risk Management Measures <i>Note: list RMM standard phrases according to the control hierarchy indicated in the ECHA template: 1. Technical measures to prevent release, 2. Technical measures to prevent dispersion, 3. Organisational measures, 4. Personal protection.</i>
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General measures (irritants) [G19].	Avoid all skin contact with product, clean up contamination/spills as soon as they occur. Wear gloves (tested to EN374) if hand contamination likely, wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposure. Use suitable eye protection [PPE26].
General measures applicable to all activities [CS]35].	No specific measures identified [E118].

Section 2.2.	Control of environmental exposure
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Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 3.	Exposure Estimation
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3.1. Health	
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PROC #	Inhalation exposure – long term (mg/m ³)	RCR inhalation	Inhalation exposure – event exposure (mg/m ³)	RCR (inhalation)
Reasonable worst case	1.00	0.20	2.00	0.20

3.2. Environment	
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Not applicable, as for this intended use the substance is not hazardous for the environment.

Section 4.	Guidance to check compliance with the Exposure Scenario
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4.1. Health	
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Guidance to DU	Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]
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	Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]
	For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].
4.2. Environment	
Not applicable, as for this intended use the substance is not hazardous for the environment.	
Section 5.	
Control of Worker Exposure	
None	
Control of environmental exposure	
None.	

Exposure Scenario 10: Use of calcium chloride by consumers

ES Annex to the e-SDS		
Section 1.	Exposure Scenario Title	
Title	Consumer use of Calcium Chloride and Calcium Chloride containing products	
Sector of Use	<ul style="list-style-type: none"> ▪ SU21: Consumer uses: Private households (= general public = consumers) 	
Product Categories	<ul style="list-style-type: none"> ▪ PC2: Adsorbents ▪ PC4: Anti-Freeze and de-icing products ▪ PC12: Fertilizers ▪ PC16: Heat transfer fluids ▪ PC 27: Plant protection products ▪ PC35: Washing and cleaning products (including solvent based products) ▪ PC37: Water treatment chemicals ▪ PC0 - UCN code K35100: Cement/concrete/mortar 	
Environmental Release Categories	<ul style="list-style-type: none"> ▪ ERC8a: Wide dispersive indoor use of processing aids in open systems ▪ ERC8d: Wide dispersive outdoor use of processing aids in open systems 	
Processes, tasks, activities covered		
Section 2.	Operational conditions (OC) and risk management measures (RMM)	
<i>Field for additional statements to explain scenario if required</i>		
Section 2.1.	Control of consumer exposure	
Physical form of product		
Concentration of substance in product	Covers concentrations up to 100%. [ConsOC1]	
Amounts used	For each use event, covers use amounts up to 50 kg unless stated differently. [ConsOC2]	
Frequency and duration of use	Covers use up to 365 days/year, unless stated differently [ConsOC3]; Covers exposure up to 24 hours/event, unless stated differently [ConsOC14]	
Human factors not influenced by risk management	Inhalation rate up to 32,9 m ³ /day.	
Other Operational Conditions affecting consumer exposure	Covers use at ambient temperatures. [ConsOC15]; Room volume of 1 m ³ 'Room volume' is interpreted here as personal space: a small area of 1 m ³ around the use. Minimum 0,6 Air Exchange Rate (1/hr). Covers use with a release area up to 125 m ² , unless stated differently. Do not touch eyes when using this product.	
Chemical Product Categories		
PC2 (adsorbents) CaCl ₂ used as domestic dehumidifier.	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC4 (antifreeze + de-icing) CaCl ₂ used for de-icing and antifreeze	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC9b (Fillers, putties, plasters modelling clay) Calcium Chloride used in modelling clay	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC12 (fertilizers) Calcium Chloride in domestic fertilizers	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC16 (Heat transfer fluids) Calcium Chloride as energy source in self-heating-cup.	OC	No specific operational conditions identified
	RMM	No specific measures identified
PC27 (plant protection) Calcium Chloride in plant protection formulations	OC	Non-spraying activities - No specific operational conditions identified
	RMM	No specific measures identified
	OC	Spraying - Covers concentration up to saturation (45%) [ConsOC1]; Covers spray duration up too 10 minutes/event.

					Covers use in room of 58m3 with room height of 2,5m.
		RMM			Spray away from person
PC35 (washing and cleaning products) Calcium Chloride containing washing and cleaning products		OC			Non-spraying activities - No specific operational conditions identified
		RMM			No specific measures identified
		OC			Spraying - Covers concentration up to saturation (45%) [ConsOC1]; Covers spray duration up too 10 minutes/event. Covers use in room of 58m3 with room height of 2,5m..
		RMM			Spray away from person
PC37 (water treatment chemicals) Calcium Chloride used as water treatment chemical e.g. in aquaria		OC			No specific operational conditions identified
		RMM			No specific measures identified
PC0- UCN code K35100 (Cement/concrete/mortar) Calcium Chloride in Cement/concrete/mortar		OC			No specific operational conditions identified
		RMM			No specific measures identified
Section 2.2.		Control of environmental exposure			
Not applicable, as for this intended use the substance is not hazardous for the environment.					
Section 3.		Exposure Estimation			
3.1. Consumer exposure					
PC2		<0.01	<0.01	0.005	<0.01
PC4		<0.01	<0.01	0.005	<0.01
PC9b		<0.01	<0.01	0.005	<0.01
PC12	spreading and transfer	<0.01	<0.01	0.005	<0.01
PC12	spraying	0.69	0.14	0.687	0.27
PC12	total	0.70	0.14	0.692	0.28
PC16		<0.01	<0.01	0.005	<0.01
PC27	spreading and transfer	<0.01	<0.01	0.005	<0.01
PC27	spraying	0.69	0.14	0.687	0.27
PC27	total	0.70	0.14	0.692	0.28
PC35		<0.01	<0.01	0.005	<0.01
PC37		<0.01	<0.01	0.005	<0.01
PC0	UCN code K35100	<0.01	<0.01	0.005	<0.01
3.2. Environment					
Not applicable, as for this intended use the substance is not hazardous for the environment.					
Section 4.		Guidance to check compliance with the Exposure Scenario			
4.1. Consumer exposure					
Guidance to DU		<p>Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented [GC 22]</p> <p>Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels. [GC 23]</p> <p>For more details or further information on the assumptions contained in this Exposure Scenario, contact the supplier [].</p>			
4.2. Environment					
Not applicable, as for this intended use the substance is not hazardous for the environment.					
Section 5.					
Control of consumer exposure					
None					
Control of environmental exposure					
None.					



PERIMETRE