



NITRATO CÁLCICO EXTRA

Fichas de datos de seguridad

conforme al Reglamento (CE) N° 1907/2006 (REACH), modificado por el Reglamento (UE) 2015/830

Fecha de emisión: 27/06/2016 Versión: 1.0

SECCIÓN 1: Identificación de la sustancia o la mezcla y de la sociedad o la empresa

1.1. Identificador del producto

Forma del producto	: Sustancia
Nombre comercial	: NITRATO CÁLCICO EXTRA
Nombre químico	: NITRATO CÁLCICO (FORMA ANHIDRA)
N° Índice	: -
N° CE	: 233-332-1
N° CAS	: 10124-37-5
Número de registro REACH	: 01-2119495093-35-xxxx
Código de producto	: HORT-013
Grupo de productos	: Sólido

1.2. Usos pertinentes identificados de la sustancia o de la mezcla y usos desaconsejados

1.2.1. Usos pertinentes identificados

Uso de la sustancia/mezcla : Fertilizante

1.2.2. Usos desaconsejados

Título	Descriptor de uso	Justificación
Uso por el consumidor	SU21, PC0, PC11	

Texto completo de los descriptor de uso: vea la sección 16.

1.3. Datos del proveedor de la ficha de datos de seguridad

PRAYON S.A.
Rue Joseph Wauters, 144
B-4480 Engis - Belgique-Belgium
T +32 (0)4 273 92 11 - F +32 (0)4 273 96 35
Reachcustomer@prayon.com - www.prayon.be

1.4. Teléfono de emergencia

País	Organismo/Empresa	Dirección	Número de emergencia	Comentario
España	Unitat de Toxicologia Clinica Servicio de Urgencias	Hospital Clinic I Provincial de Barcelona C/Villarroel, 170 E-08036 Barcelona	+34 93 227 98 33 +34 93 227 54 00 bleep 190	
España	Instituto de Toxicologia	C/Merced 1 8002 Barcelona	+34 93 317 44 00	
España	Servicio de Información Toxicológica Instituto Nacional de Toxicología y Ciencias Forenses, Centro Svizzero d'Informazione Tossicologica	C/José Echegaray nº4 28232 Las Rozas de Madrid	+34 91 562 04 20	(solo emergencias toxicológicas), Información en español (24h/365 días)
España	Servicio de Información Toxicológica Instituto Nacional de Toxicología, Departamento de Sevilla	Carretera de San Jerónimo Km 0,4 E-41080 Sevilla	+34 95 437 12 33	

SECCIÓN 2: Identificación de los peligros

2.1. Clasificación de la sustancia o de la mezcla

Clasificación según reglamento (UE) No. 1272/2008 [CLP]

Sólidos comburentes, Categoría 3 H272
Toxicidad aguda (oral), Categoría 4 H302
Lesiones oculares graves o irritación
ocular, Categoría 1 H318
Texto completo de las frases H: ver sección 16

Efectos adversos fisicoquímicos, para la salud humana y el medio ambiente

No se dispone de más información

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2.2. Elementos de la etiqueta

Etiquetado según el Reglamento (CE) N° 1272/2008 [CLP]

Pictogramas de peligro (CLP) :



Palabra de advertencia (CLP) :

Peligro

Indicaciones de peligro (CLP) :

H272 - Puede agravar un incendio; comburente
H302 - Nocivo en caso de ingestión
H318 - Provoca lesiones oculares graves

Consejos de prudencia (CLP) :

P210 - Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar
P220 - Mantener o almacenar alejado de la ropa, materias combustibles
P301+P312 - EN CASO DE INGESTIÓN: Llamar a un CENTRO DE TOXICOLOGÍA, un médico si la persona se encuentra mal
P270 - No comer, beber ni fumar durante su utilización
P280 - Llevar gafas de protección, máscara de protección, prendas de protección, guantes de protección
P264 - Lavarse las manos concienzudamente después de la manipulación
P305+P351+P338 - EN CASO DE CONTACTO CON LOS OJOS: Aclarar cuidadosamente con agua durante varios minutos. Quitar las lentes de contacto, si lleva y resulta fácil. Seguir aclarando
P310 - Llamar inmediatamente a un CENTRO DE TOXICOLOGÍA, un médico
P330 - Enjuagarse la boca
P370+P378 - En caso de incendio: Utilizar Agua para la extinción

2.3. Otros peligros

Esta sustancia/mezcla no cumple los criterios PBT del anexo XIII del reglamento REACH

Esta sustancia/mezcla no cumple los criterios mPmB del anexo XIII del reglamento REACH

SECCIÓN 3: Composición/información sobre los componentes

3.1. Sustancia

Nombre : NITRATO CÁLCICO EXTRA
N° CAS : 10124-37-5
N° CE : 233-332-1
N° Índice : -

Nombre	Identificador del producto	%	Clasificación según reglamento (UE) No. 1272/2008 [CLP]
NITRATO CÁLCICO (FORMA ANHIDRA)	(N° CAS) 10124-37-5 (N° CE) 233-332-1 (REACH-no) 01-2119495093-35	>= 96	Ox. Sol. 3, H272 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318

Texto completo de las frases H: ver sección 16

3.2. Mezcla

No aplicable

SECCIÓN 4: Primeros auxilios

4.1. Descripción de los primeros auxilios

Medidas de primeros auxilios en caso de inhalación : Consultar un especialista en caso de persistencia de los síntomas. Llevar a la víctima al aire libre.
Medidas de primeros auxilios en caso de contacto con la piel : Lavar inmediatamente con agua jabonosa abundante. Consúltese con el médico en caso de malestar o aumento de la irritación.
Medidas de primeros auxilios en caso de contacto con los ojos : En caso de contacto con los ojos, aclarar inmediatamente con agua limpia durante 10-15 minutos. Parpadee a menudo. Acudir inmediatamente al médico.
Medidas de primeros auxilios en caso de ingestión : En caso de ingestión, enjuagar la boca con agua (solamente si la persona está consciente). Consultar a un médico inmediatamente.

4.2. Principales síntomas y efectos, agudos y retardados

Síntomas y lesiones posibles en caso de contacto con los ojos : Provoca lesiones oculares graves.

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Síntomas y lesiones posibles en caso de ingestión : Nocivo: posibilidad de efectos irreversibles por ingestión. Puede provocar una quemadura o una irritación de los tejidos de la boca, de la garganta y del tracto gastro-intestinal.

4.3. Indicación de toda atención médica y de los tratamientos especiales que deban dispensarse inmediatamente

Véase la Sección 4.1.

SECCIÓN 5: Medidas de lucha contra incendios

5.1. Medios de extinción

Medios de extinción apropiados : Agua pulverizada.
Medios de extinción no apropiados : Espuma. Flujo potente de agua. Arena seca.

5.2. Peligros específicos derivados de la sustancia o la mezcla

Peligro de incendio : Peligro de fuego en contacto con materias combustibles. La descomposición térmica genera vapores tóxicos.

5.3. Recomendaciones para el personal de lucha contra incendios

Protección durante la extinción de incendios : Usen indumentaria química hermética y guantes de protección adecuada. Llevar un aparato respiratorio autónomo, botas de goma y guantes de goma gruesos.

SECCIÓN 6: Medidas en caso de vertido accidental

6.1. Precauciones personales, equipo de protección y procedimientos de emergencia

Medidas generales : Eliminar las posibles fuentes de ignición. Prever una ventilación suficiente para reducir las concentraciones de polvo. Llevar el equipo de protección individual recomendado.

6.1.1. Para el personal que no forma parte de los servicios de emergencia

No se dispone de más información

6.1.2. Para el personal de emergencia

No se dispone de más información

6.2. Precauciones relativas al medio ambiente

Evitar su introducción en las alcantarillas y las aguas naturales.

6.3. Métodos y material de contención y de limpieza

Procedimientos de limpieza : Si está en el suelo, bárralo o échelo con una pala en recipientes apropiados. Evitar la producción de polvo. Ventilar la zona. Aclarar con agua abundante.

6.4. Referencia a otras secciones

Véase la sección 8 y 13 para obtener más información.

SECCIÓN 7: Manipulación y almacenamiento

7.1. Precauciones para una manipulación segura

Precauciones para una manipulación segura : Evitar toda contaminación con sustancias extrañas. Evitar la producción de polvo. Mantener alejado del calor, de superficies calientes, de chispas, de llamas abiertas y de cualquier otra fuente de ignición. No fumar. El puesto de trabajo ha de estar bien ventilado. Llevar el equipo de protección individual recomendado. Mantener alejado de : Agentes reductores, álcalis, Metales, Productos combustibles.

7.2. Condiciones de almacenamiento seguro, incluidas posibles incompatibilidades

Condiciones de almacenamiento : Manténgase en un lugar seco, fresco y bien ventilado. Mantener limpia la zona de almacenamiento. Evitar el contacto con alimentos y bebidas.

Material de embalaje : Polipropileno.

7.3. Usos específicos finales

Agricultura. Fertilizante. aceites/grasas. Construcción de edificios y obras de construcción.

SECCIÓN 8: Controles de exposición/protección individual

8.1. Parámetros de control

NITRATO CÁLCICO EXTRA (10124-37-5)	
DNEL/DMEL (Trabajadores)	
A largo plazo - efectos sistémicos, cutáneos	13,9 mg/kg de peso corporal/día
A largo plazo - efectos sistémicos, inhalación	98 mg/m ³
DNEL/DMEL (Población en general)	
A largo plazo - efectos sistémicos, oral	8,33 mg/kg de peso corporal/día
A largo plazo - efectos sistémicos, inhalación	29 mg/m ³
A largo plazo - efectos sistémicos, cutáneos	8,33 mg/kg de peso corporal/día
PNEC (Agua)	
PNEC agua (agua dulce)	0,45 mg/l

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PNEC agua (agua de mar)	0,045 mg/l
PNEC agua (intermitente, agua dulce)	4,5 mg/l
PNEC (STP)	
PNEC estación depuradora	18 mg/l

8.2. Controles de la exposición

Controles técnicos apropiados:

Disponga de una ventilación adecuada para minimizar las concentraciones de polvo. Prever fuentes de emergencia para el lavado de ojos y duchas de seguridad en las áreas con riesgo de exposición.

Protección de las manos:

Llevar guantes de protección química

Protección ocular:

Gafas de seguridad con protecciones laterales

Protección de la piel y del cuerpo:

Llevar un equipo de protección adecuado

Protección de las vías respiratorias:

Llevar un aparato respiratorio adecuado para polvo o niebla en el caso de que la manipulación del producto genere partículas en suspensión (tipo FFP2 según la norma EN 140 o 149)

Control de la exposición ambiental:

No verter en el medio ambiente.

SECCIÓN 9: Propiedades físicas y químicas

9.1. Información sobre propiedades físicas y químicas básicas

Forma/estado	: Sólido granular.
Color	: Blanco. Ligeramente tostado.
Olor	: inodoro.
Umbral olfativo	: No hay datos disponibles
pH	: 6 (5% Solución)
Grado de evaporación (acetato de butilo=1)	: No hay datos disponibles
Punto de fusión	: 560 °C
Punto de solidificación	: No hay datos disponibles
Punto de ebullición	: No hay datos disponibles
Punto de inflamación	: No aplicable
Temperatura de autoignición	: No hay datos disponibles
Temperatura de descomposición	: No hay datos disponibles
Inflamabilidad (sólido, gas)	: No hay datos disponibles
Presión de vapor	: No hay datos disponibles
Densidad relativa de vapor a 20 °C	: No hay datos disponibles
Densidad relativa	: 2,5
Densidad	: 1100 - 1200 kg/m³
Solubilidad	: Producto muy soluble en agua. Agua: > 100 g/l 20°C
Log Pow	: No hay datos disponibles
Viscosidad, cinemática	: No hay datos disponibles
Viscosidad, dinámica	: No hay datos disponibles
Propiedades explosivas	: El producto no es explosivo.
Propiedad de provocar incendios	: Oxidante.
Límites de explosión	: No hay datos disponibles

9.2. Información adicional

No se dispone de más información

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SECCIÓN 10: Estabilidad y reactividad

10.1. Reactividad

Sustancias oxidantes. Riesgo de explosión al calentarlo en ambiente confinado. Estable en condiciones normales (Manipulación y almacenamiento).

10.2. Estabilidad química

Estable en condiciones normales (Manipulación y almacenamiento).

10.3. Posibilidad de reacciones peligrosas

No se dispone de más información

10.4. Condiciones que deben evitarse

Almacenar alejado de : Agente oxidante. Fuego. Chispas. Materiales incompatibles. Calor.

10.5. Materiales incompatibles

Agente reductor. materias combustibles. Óxido de nitrógeno. amoniacal. (sustancia organica). Polvo metalico.

10.6. Productos de descomposición peligrosos

Óxido de nitrógeno(NOx). Humos tóxicos. Óxidos de carbono (CO, CO2).

SECCIÓN 11: Información toxicológica

11.1. Información sobre los efectos toxicológicos

Toxicidad aguda : Oral: Nocivo en caso de ingestión.

NITRATO CÁLCICO EXTRA (10124-37-5)	
DL50 oral rata	300 - 2000 mg/kg
DL50 cutánea rata	> 2000 mg/kg

Corrosión o irritación cutáneas	: No irritante pH: 6 (5% Solución)
Lesiones o irritación ocular graves	: Corrosivo. conejo. OECD 405 pH: 6 (5% Solución)
Sensibilización respiratoria o cutánea	: No causó la sensibilización
Mutagenicidad en células germinales	: No mutagénico
Carcinogenicidad	: No hay efectos carcinógenos
Toxicidad para la reproducción	: Toxicidad para la reproducción No clasificado. rata
Toxicidad específica en determinados órganos (STOT) – exposición única	: No clasificado
Toxicidad específica en determinados órganos (STOT) – exposición repetida	: No clasificado
Peligro por aspiración	: No clasificado

SECCIÓN 12: Información ecológica

12.1. Toxicidad

NITRATO CÁLCICO EXTRA (10124-37-5)	
CL50 peces 1	1378 mg/l Poecilia reticulata - Nitrato de potasio
CE50 Daphnia 1	> 490 mg/l Nitrato de potasio- 48h
ErC50 (algas)	> 100 mg/l (72 -horas)
LOEC (agudo)	> 1700 mg/l

12.2. Persistencia y degradabilidad

NITRATO CÁLCICO EXTRA (10124-37-5)	
Persistencia y degradabilidad	Fácilmente biodegradable. Disociación completa en presencia de agua.

12.3. Potencial de bioacumulación

NITRATO CÁLCICO EXTRA (10124-37-5)	
Potencial de bioacumulación	no bioacumulable.

12.4. Movilidad en el suelo

NITRATO CÁLCICO EXTRA (10124-37-5)	
Ecología - suelo	Producto muy soluble en agua.

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12.5. Resultados de la valoración PBT y mPmB

NITRATO CÁLCICO EXTRA (10124-37-5)

Esta sustancia/mezcla no cumple los criterios PBT del anexo XIII del reglamento REACH

Esta sustancia/mezcla no cumple los criterios mPmB del anexo XIII del reglamento REACH

Resultados de la evaluación PBT	Irrelevante.(sustancia inorgánica)
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12.6. Otros efectos adversos

Otros efectos adversos : Nitrato puede causar una eutrofización de las aguas naturales.

SECCIÓN 13: Consideraciones relativas a la eliminación

13.1. Métodos para el tratamiento de residuos

Métodos para el tratamiento de residuos : Eliminar el producto de conformidad con la normativa local.

Indicaciones adicionales : Los envases vacíos susceptibles de contener residuos del producto deben ser recuperados o eliminados según los reglamentos locales/nacionales en vigor.

Ecología - residuos : Ver el catálogo europeo de los residuos.

SECCIÓN 14: Información relativa al transporte

Según los requisitos de ADR / RID / IMDG / IATA / ADN

14.1. Número ONU

N° ONU (ADR)	: 1454
N° ONU (IMDG)	: 1454
N° ONU (IATA)	: 1454
N° ONU (ADN)	: 1454
N° ONU (RID)	: 1454

14.2. Designación oficial de transporte de las Naciones Unidas

Designación oficial de transporte (ADR)	: NITRATO CÁLCICO
Designación oficial de transporte (IMDG)	: NITRATO CÁLCICO
Designación oficial de transporte (IATA)	: Calcium nitrate
Designación oficial de transporte (ADN)	: NITRATO CÁLCICO
Designación oficial de transporte (RID)	: NITRATO CÁLCICO
Descripción del documento del transporte (ADR)	: UN 1454 NITRATO CÁLCICO, 5.1, III, (E)
Descripción del documento del transporte (IMDG)	: UN 1454 NITRATO CÁLCICO, 5.1, III
Descripción del documento del transporte (IATA)	: UN 1454 Calcium nitrate, 5.1, III
Descripción del documento del transporte (ADN)	: UN 1454 NITRATO CÁLCICO, 5.1, III
Descripción del documento del transporte (RID)	: UN 1454 NITRATO CÁLCICO, 5.1, III

14.3. Clase(s) de peligro para el transporte

ADR

Clase(s) de peligro para el transporte (ADR) : 5.1

Etiquetas de peligro (ADR) : 5.1



IMDG

Clase(s) de peligro para el transporte (IMDG) : 5.1

Etiquetas de peligro (IMDG) : 5.1



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IATA

Clase(s) de peligro para el transporte (IATA) : 5.1

Etiquetas de peligro (IATA) : 5.1



ADN

Clase(s) de peligro para el transporte (ADN) : 5.1

Etiquetas de peligro (ADN) : 5.1



RID

Clase(s) de peligro para el transporte (RID) : 5.1

Etiquetas de peligro (RID) : 5.1



14.4. Grupo de embalaje

Grupo de embalaje (ADR) : III

Grupo de embalaje (IMDG) : III

Grupo de embalaje (IATA) : III

Grupo de embalaje (ADN) : III

Grupo de embalaje (RID) : III

14.5. Peligros para el medio ambiente

Peligroso para el medio ambiente : No

Contaminante marino : No

Información adicional : No se dispone de información adicional

14.6. Precauciones particulares para los usuarios

- Transporte por vía terrestre

Código de clasificación (ADR) : O2

Disposiciones especiales (ADR) : 208

Cantidades limitadas (ADR) : 5kg

Cantidades exceptuadas (ADR) : E1

Instrucciones de embalaje (ADR) : P002, IBC08, LP02, R001

Disposiciones especiales de embalaje (ADR) : B3

Disposiciones particulares relativas al embalaje común (ADR) : MP10

Instrucciones para cisternas portátiles y contenedores para granel (ADR) : T1, BK1, BK2

Disposiciones especiales para cisternas portátiles y contenedores para granel (ADR) : TP33

Código cisterna (ADR) : SGAV

Disposiciones especiales para cisternas (ADR) : TU3

Vehículo para el transporte en cisterna : AT

Categoría de transporte (ADR) : 3

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Disposiciones especiales de transporte - Granel (ADR) : VC1, VC2, AP6, AP7

Disposiciones especiales de transporte - Carga, descarga y manipulado (ADR) : CV24

N° Peligro (código Kemler) : 50

Panel naranja :



Código de restricción en túneles (ADR) : E

- Transporte marítimo

Disposiciones especiales (IMDG) : 208, 967

Cantidades limitadas (IMDG) : 5 kg

Cantidades exceptuadas (IMDG) : E1

Instrucciones de embalaje (IMDG) : P002, LP02

Instrucciones de embalaje GRG (IMDG) : IBC08

Disposiciones especiales GRG (IMDG) : B3

Instrucciones para cisternas (IMDG) : T1, BK2, BK3

Disposiciones especiales para las cisternas (IMDG) : TP33

N.° FS (Fuego) : F-A

N.° FS (Derrame) : S-Q

Categoría de carga (IMDG) : A

Estiba y Manipulación (IMDG) : SW23

- Transporte aéreo

Cantidades exceptuadas para aviones de pasajeros y de carga (IATA) : E1

Cantidades limitadas para aviones de pasajeros y de carga (IATA) : Y546

Cantidad neta máxima para cantidad limitada en aviones de pasajeros y de carga (IATA) : 10kg

Instrucciones de embalaje para aviones de pasajeros y de carga (IATA) : 559

Cantidad neta máxima para aviones de pasajeros y de carga (IATA) : 25kg

Instrucciones de embalaje exclusivamente para aviones de carga (IATA) : 563

Cantidad máx. neta exclusivamente para aviones de carga (IATA) : 100kg

Disposiciones especiales (IATA) : A83

Código GRE (IATA) : 5L

- Transporte por vía fluvial

Código de clasificación (ADN) : O2

Disposiciones especiales (ADN) : 208

Cantidades limitadas (ADN) : 5 kg

Cantidades exceptuadas (ADN) : E1

Transporte admitido (ADN) : B

Equipo requerido (ADN) : PP

Disposiciones previas a la carga (ADN) : LO04

Medidas durante la descarga (ADN) : CO02

Número de conos/luces azules (ADN) : 0

- Transporte ferroviario

Código de clasificación (RID) : O2

Disposiciones especiales (RID) : 208

Cantidades limitadas (RID) : 5kg

Cantidades exceptuadas (RID) : E1

Instrucciones de embalaje (RID) : P002, IBC08, LP02, R001

Disposiciones especiales de embalaje (RID) : B3

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Disposiciones particulares relativas al embalaje común (RID)	: MP10
Instrucciones para cisternas portátiles y contenedores para granel (RID)	: T1, BK1, BK2
Disposiciones especiales para cisternas portátiles y contenedores para granel (RID)	: TP33
Códigos de cisterna para las cisternas RID (RID)	: SGAV
Disposiciones especiales para las cisternas RID (RID)	: TU3
Categoría de transporte (RID)	: 3
Disposiciones especiales relativas al transporte - Granel (RID)	: VC1, VC2, AP6, AP7
Disposiciones especiales relativas al transporte - Carga, descarga y manipulación (RID)	: CW24
Paquetes exprés (RID)	: CE11
N.º de identificación del peligro (RID)	: 50

14.7. Transporte a granel con arreglo anexo II del Convenio MARPOL y del Código IBC

No aplicable

SECCIÓN 15: Información reglamentaria

15.1. Reglamentación y legislación en materia de seguridad, salud y medio ambiente específicas para la sustancia o la mezcla

15.1.1. UE-Reglamentos

Sin restricciones según el anexo XVII de REACH

NITRATO CÁLCICO EXTRA no figura en la lista de sustancias candidatas de REACH

NITRATO CÁLCICO EXTRA no figura en la lista del Anexo XIV de REACH

Otras instrucciones, restricciones y disposiciones legales : REGLAMENTO (UE) N o 98/2013 DEL PARLAMENTO EUROPEO Y DEL CONSEJO de 15 de enero de 2013 sobre la comercialización y la utilización de precursores de explosivos - La sustancia figura en la lista.

15.1.2. Reglamentos nacionales

No se dispone de más información

15.2. Evaluación de la seguridad química

Una evaluación de la seguridad química ha sido efectuada

SECCIÓN 16: Información adicional

Indicación de modificaciones:

conforme al Reglamento (CE) N° 1907/2006 (REACH), modificado por el Reglamento (UE) 2015/830.

Abreviaturas y acrónimos:

NITRATO CÁLCICO EXTRA

Fichas de datos de seguridad

conforme al Reglamento (CE) N° 1907/2006 (REACH), modificado por el Reglamento (UE) 2015/830

	ADN: European Agreement concerning international carriage of Dangerous goods by Inland waterways ADR: European Agreement concerning international carriage of Dangerous goods by Road AF : Assessment factor BCF : Bioconcentration factor Bw: Body weight CAS: Chemical Abstracts Service CLP : Classification, labelling, packaging CSR: Chemical Safety Report DMEL : Derived maximum effect level DNEL: Derivative No effect Level EC: European Community ELV : Emission limit values EN: European Norm EUH: European Hazard Statement EWC : European Waste catalogue IATA: International Air Transport Association ICAO: International Civil Aviation Organization IMDG: International Maritime Dangerous Goods LC50: Median lethal concentration LD50 : Median lethal dose NOAEL : No-observed-adverse-effect-level NOEC : No observed effect concentration NOEL : No observed effect level OEL : Operator exposure level PBT: Persistent, bioaccumulative, Toxic PEC : Predicted effect level PNEC: Predicted No effect Concentration REACH : Registration, evaluation and autorisation of chemicals RID: Regulations concerning the international carriage of dangerous goods by rail STEL: Short Term Exposure Limit TWA : Time weighted average vPvB: Very persistent, very bioaccumulative
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Fuentes de los datos : SDS.

Full text of H- and EUH-phrases:

Acute Tox. 4 (Oral)	Toxicidad aguda (oral), Categoría 4
Eye Dam. 1	Lesiones oculares graves o irritación ocular, Categoría 1
Ox. Sol. 3	Sólidos comburentes, Categoría 3
H272	Puede agravar un incendio; comburente
H302	Nocivo en caso de ingestión
H318	Provoca lesiones oculares graves
PC0	OBJETOS PIROTÉCNICOS
PC11	Explosivos
SU21	Usos por los consumidores: Domicilios particulares (= público general = consumidores)

FDS EU (Anexo II REACH)

Esta información se basa en nuestro conocimiento actual y tiene como finalidad describir el producto para los propósitos de los requisitos de salud, seguridad y medio ambiente únicamente. Por lo tanto, no debe ser interpretada como garantía de ninguna característica específica del producto. EXENCIÓN DE RESPONSABILIDAD – Las informaciones incluidas en la presente ficha provienen de fuentes que consideramos fiables. No obstante, se ofrecen sin ninguna garantía, expresa o tácita, de su exactitud. Las condiciones o los métodos de manipulación, almacenaje, utilización o eliminación del producto están fuera de nuestro control y puede que no sean objeto de nuestras competencias. Por estas razones entre otras, declinamos toda responsabilidad en caso de pérdida, daños o gastos ocasionados (o bien asociados de algún modo a dichos factores) por la manipulación, el almacenamiento, la utilización o la eliminación del producto. La presente ficha de datos de seguridad (FDS) ha sido elaborada para este producto y sólo debe utilizarse a dicho efecto. En el caso de que el producto se utilice como componente de otro producto, es posible que las informaciones que aquí se incluyen no sean aplicables.

Annex to the safety data sheet

EXPOSURE ASSESSMENT

Under the REACH Regulation a chemical safety assessment (CSA) for the whole life-cycle of a substance is required. The CSA describes how the manufacturer controls, or recommends downstream users to control, exposures of humans and the environment.

Human exposure assessment

Calcium nitrate (anhydrous) is classified as oxidizer (R8 according to 67/548/EEC and H272 according to CLP), acute harmful via the oral route (R22 according to 67/548/EEC and H302 according to CLP) and damaging to eyes only under CLP (H318 according to CLP). Exposure to this form of calcium nitrate is not relevant for any of the described exposure scenarios. Calcium nitrate tetrahydrate (and/or water solution) is considered to be the relevant form for the exposure scenarios described in this report. This substance is classified acute harmful via the oral route (R22 according to 67/548/EEC and H302 according to CLP) and damaging to eyes (H318 according to CLP, R41 according to 67/548/EEC).

As the acute oral route is not considered a relevant exposure route in the exposure scenarios described, no peak exposure possible via this route, and the substance did not show any systemic effects in the repeated dose studies a quantitative assessment for systemic toxicity is not considered relevant for this substance. No adverse systemic effects were observed in a subacute toxicity study for an analogue (potassium-pentacalcium-nitrate decahydrate (Nitcal-K), tested up to 1000 mg/kg bw/day) which was also classified as acute harmful via the oral route. As no effects were noted at high levels that humans are normally not exposed to a quantitative assessment is not considered necessary. DNELs, however are derived for systemic toxicity for workers and the general population but are not assessed against exposure estimates.

A qualitative assessment has been performed for the leading toxicological effect being a local endpoint (eye irritation/corrosion). For this endpoint no dose-effect response curve can be determined and therefore a DNEL cannot be derived.

Environmental exposure assessment

An environmental exposure and risk assessment has not been performed. All nitrates show a low or negligible toxicity to vertebrates, invertebrates and algae. Although results of the studies and publications are sometimes expressed as being > 100 mg/L, lowest measured value without effects is 490 mg/L (study with invertebrates on potassium nitrate).

The substance does not hydrolyze nor is there evidence for photodegradation. In aqueous solution, it is completely dissociated into nitrate (NO₃⁻) and the corresponding cation. Due to the inorganic nature of the substance standard biodegradation testing systems are not applicable.

Nitrification and de-nitrification processes occur naturally in streams and rivers, as well as in many secondary sewage treatment processes. Based on the high water solubility and the ionic nature, the substance is not expected to adsorb or bioaccumulate to a significant extent. Based on the physico-chemical properties, water is expected to be the main target compartment.

Nitrate substances are known to play an important role in the nutrient enrichment of surface waters, commonly called eutrophication. Eutrophication waters are characterized by an elevated nutrient concentrations, which stimulate the growth of certain algal species, favoring simple algae and plankton growths. The oxygen concentration in water will generally decrease influencing other lives, such as most fish species leading to a negative effect on the biodiversity of the ecosystem. As eutrophication is a common effect due to an excess in nitrate in the environment, the problem is covered in European Regulations.

The Directive 2000/60 of the European parliament and of the council of 23 October 2000 establishing a framework for Community action in the field of water policy and the Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources are both important European Regulations regulating the emission and concentration of nitrate substances in the environment.

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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

The Nitrates Directive (1991) aims to protect water quality across Europe by preventing nitrates from agricultural sources polluting ground and surface waters and by promoting the use of good farming practices. The Nitrates Directive has close links with other EU policies concerning water, air, climate change and agriculture, and its implementation yields benefits in all these areas:

- Reducing nitrates is an integral part of the Water Framework Directive (2000), which establishes a comprehensive, cross-border approach to water protection organised around river basin districts (RBDs), with the aim of achieving good status for European bodies of water by 2015.
- The new Groundwater Directive (2006) confirms that nitrate concentrations must not exceed the trigger value of 50mg/l. Several Member States have set their own tighter limits, in order to reach good status.
- Air and soil quality: livestock management and farming cause, among other things, emissions of ammonia (NH₃), which have an impact on human health and on the environment, as they contribute to the acidification

process in soil, eutrophication of waters and ground-level ozone pollution, together with other pollutants (sulphur dioxide, nitrogen oxides, volatile organic compounds). The full implementation of the Nitrates Directive is expected to contribute to the reduction of ammonia emissions by 14% on 2000 levels by 2020, as measures limiting, for example, amounts of fertiliser applied, have a positive impact on both nitrate losses towards waters and ammonia emissions into the air.

- Climate change: All activities related to livestock and fertiliser management release nitrous oxide (N₂O) and methane (CH₄), greenhouse gasses with a global warming potential 310 and 21 times higher than CO₂ respectively. If fully implemented, the Nitrates Directive could cut N₂O emissions by 6% on 2000 levels by 2020, for example, and contribute to climate change mitigation.
- The common agricultural policy (CAP) backs up the Nitrates Directive through direct support and rural development measures. For example, several Member States have included nutrient management measures, such as wider buffer strips around water courses, among the agri-environmental initiatives for which farmers can receive payments. Direct support is subject to crosscompliance with EU environmental legislation, including the Nitrates Directive.
- The Urban Wastewater Directive (1991) sets standards for the collection and treatment of wastewater from homes and some industrial sectors.

Because of the low toxicity of calcium nitrate towards aquatic organisms and regulation within several European/National Laws an environmental exposure and risk assessment for this substance is not considered necessary.

Calcium nitrate is mainly used in fertilizers, but besides that is also a constituent in several preparations. The qualitative assessment will focus on the manufacturing of fertilizers, use by professionals and consumers. Furthermore, the non-fertilizer uses will also be assessed. In table 1 the uses that have been further assessed are summarized.

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Table 1. Short description of all identified uses for CaN with their use descriptors and life cycle stage

Number (IU)	Short description of identified use	Product Category (PC)	Life Cycle Stage(s) covered by the IU						Sector of use (SU)	Process Category (Proc)	Article Category (AC)	Environmental Release Category (ERC)
			Manufacture	Formulation	End Use			Service Life (for article)				
					Industrial	Professional	Consumer					
1	Manufacturing of the substance, including handling, storage and q control.	-	X						SU3, SU8, SU9	PROC1, PROC2, PROC3, PROC8b, PROC14, PROC15	-	ERC1
2	Distribution, storage and q control. Industrial setting.	-			X				SU3	PROC1, PROC2, PROC8a, PROC8b, PROC9, PROC15	-	ERC2
3	Formulation of mixtures and solutions of substance	PC0(K35000), PC4, PC9a, PC11, PC12, PC14, PC16, PC20, PC21, PC34, PC35, PC37, PC39		X					SU3, SU10	PROC3, PROC4, PROC5, PROC14	-	ERC2

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Number (IU)	Short description of identified use	Product Category (PC)	Life Cycle Stage(s) covered by the IU						Sector of use (SU)	Process Category (Proc)	Article Category (AC)	Environmental Release Category (ERC)
			Manufacture	Formulation	End Use			Service Life (for article)				
					Industrial	Professional	Consumer					
4	Use as intermediate or chemical agent to synthesise other substances	PC19			X				SU3	PROC1, PROC2, PROC3, PROC4	-	ERC6A, ERC6B
5	Industrial use of construction chemicals	PC20			X				SU3	PROC8b	-	ERC4, ERC5
6	Industrial use in laboratories	PC21			X				SU3	PROC15	-	ERC6b
7	Industrial use as corrosion protection agent	PC14			X				SU3	PROC13	-	ERC5
8	Industrial use in heat transfer fluids	PC16			X				SU3	PROC2	-	ERC6b, ERC7
9	Industrial use for waste water treatment	PC37, PC20			X				SU3	PROC2, PROC3	-	ERC6b

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Number (IU)	Short description of identified use	Product Category (PC)	Life Cycle Stage(s) covered by the IU						Sector of use (SU)	Process Category (Proc)	Article Category (AC)	Environmental Release Category (ERC)
			Manufacture	Formulation	End Use			Service Life (for article)				
					Industrial	Professional	Consumer					
10	Industrial use as processing aid	PC20, PC9a			X				SU3	PROC1, PROC2, PROC4, PROC7, PROC8b, PROC10, PROC13	-	ERC4, ERC5, ERC6a, ERC6b, ERC6d
11	Industrial use in textiles	PC34			X				SU3	PROC13	-	ERC4, ERC5
12	Distribution, storage in professional setting.	-				X			SU22	PROC1, PROC2, PROC8a, PROC8b, PROC9	-	ERC8b
13	Professional use of fertilizers containing CaN	PC12				X			SU22	PROC2, PROC5, PROC8a, PROC8b, PROC9	-	ERC8B, ERC8E, ERC9b
14	Professional use in construction materials	PC20				X			SU22	PROC8a	-	ERC8c

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Number (IU)	Short description of identified use	Product Category (PC)	Life Cycle Stage(s) covered by the IU					Sector of use (SU)	Process Category (Proc)	Article Category (AC)	Environmental Release Category (ERC)	
			Manufacture	Formulation	End Use							Service Life (for article)
					Industrial	Professional	Consumer					
15	Professional use in laboratories	PC21				X		SU22	PROC15	-	ERC8b	
16	Professional use as corrosion protection agent	PC14				X		SU22	PROC13	-	ERC8c	
17	Professional use of substance as a heat transfer fluid	PC16				X		SU22	PROC1, PROC2, PROC9, PROC20	-	ERC9a	
18	Professional use as deicing product	PC4				X		SU22	PROC8a	-	ERC8d	
19	Professional use in cleaning products	PC35				X		SU22	PROC8a, PROC10	-	ERC8a	
20	Consumer use of fertilizers	PC12					X	SU21	-	-	ERC8B, ERC8e	
21	Consumer use of construction chemicals	-					X	X	SU21	-	AC4 ERC10a	

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Number (IU)	Short description of identified use	Product Category (PC)	Life Cycle Stage(s) covered by the IU						Sector of use (SU)	Process Category (Proc)	Article Category (AC)	Environmental Release Category (ERC)
			Manufacture	Formulation	End Use			Service Life (for article)				
					Industrial	Professional	Consumer					
22	Consumer use of deicing products	PC4					X		SU21	-	-	ERC8d
23	Consumer use of cleaning products	PC35					X		SU21	-	-	ERC8a, ERC8b
24	Consumer use of cosmetics	PC39					X		SU21	-	-	ERC8a

Reaction mass of calcium nitrate, magnesium nitrate and nitric acid is only produced in closed batch process and used as mixed into as additive (PROC 3) into solid ammonium nitrate based fertilizers (IU 1, 3, 13).

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Table 1, as it is proposed above, contains the identified uses. It also contains all the information necessary for a Tier 1 exposure assessment with ECETOC TRA (workers and consumers). However, as explained in the introduction a qualitative assessment will be performed for man, as the leading effect is eye irritation/corrosion from which no dose-response curve can be established and a DNEL cannot be set. Normally the information from table 1 is used to derive a table listing the target group template needed to build the exposure scenarios based on the Tier 1 method: for worker (PROC driver of Tier 1 exposure estimate) and for consumer (PC or AC driver of Tier 1 exposure estimate). In this table IUs with the same driver of exposure/release would be grouped. However, as in this case a qualitative assessment will be done the reported uses will be grouped into the main sector of uses as the applicable RMMs will be comparable for all processes within a specific sector. The following exposure scenarios will be described:

Table 2. Overview on exposure scenarios and corresponding use descriptors

Exposure scenario	Short description of ES	Linked to IU	PC	SU	PROC	AC	ERC
ES1	manufacturing	1	-	3, 8, 9	1, 2, 3, 8b, 14, 15	-	1
ES2	industrial use including distribution and other activities related to the processes in industrial settings	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 19	0(K35000), 4, 9a, 11, 12, 14, 16, 20, 21, 34, 35, 37, 39	3, 10	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15	-	2, 4, 5, 6a, 6b, 6d, 7
ES3	professional end use	12, 13, 14, 15, 16, 17, 18, 19	4, 12, 14, 16, 20, 21, 35	22	1, 2, 5, 8a, 8b, 9, 10, 13, 15, 20	-	8a, 8b, 8c, 8d, 8e, 9a, 9b
ES4	consumer end use	20, 21, 22, 23, 24	4, 12, 35, 39	21	-	4	8a, 8b, 8d, 8e, 10a

1. Manufacturing of the substance

1.1. Exposure scenario

1.1.1. Description of activities and processes covered in the exposure scenario.

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Manufacturing of the substance: SU8, PROC1/2/3/8b/14/15, ERC1

1.1.2. Control of workers exposure

Table 3. Worst case operational conditions and risk management measures

Frequency and duration of use			
	Value	Unit	Remarks
Duration of worker exposure	> 4	hours/day	
Product characteristics			
Physical state of the substance/product	Solid	solid/liquid	Product can be solid or liquid (water solution)
Volatility of the substance/product	low	hPa	volatility of the substance
Relative molecular weight of the substance	164.08		Needed to calculate from ppm to mg/m ³
Concentration of substance in product	-	%	Not relevant
Operational conditions not accessible for risk management			
Is the activity performed inside or outside?	Inside		
Conditions and measures at process level (source) to prevent/limit release/exposure			
Conditions and measures related to control of dispersion towards the worker			
Is local exhaust ventilation needed?	No		
Conditions and measures related to personal protective equipment and hygiene			
Is respiratory protection needed?	No		
Is skin protection needed?	No		

Calcium nitrate, the hydrated form and/or water solution relevant for this scenario, is classified R22 (acute harmful via oral route) and R41 (corrosive to eyes) according to 67/548 EEC and is classified H302 and H318 according to CLP. Exposure of the eye to dust or splashes at concentrations leading to irritation/corrosion during manufacturing of calcium nitrate can occur. The oral route is not considered relevant for this scenario, as under normal operating conditions workers will not be exposed via this route.

1.1.3. Risk management measures

The risk management measures related to workers can be found in Table 4. Because calcium nitrate is irritating/corrosive to eyes, the risk management measures for human health aim to avoid direct contact with the substance. According to table E.3-1 of the ECHA guidance part E classification with R22/H302 does not trigger additional risk management measures.

Table 4. Risk management measures related to workers at industrial sites

Information type	Data field	Explanation
Containment and local exhaust ventilation		
Containment plus good work practice required	Containment as appropriate	
Local exhaust ventilation required plus good work practise	Good standard of general ventilation	
Personal protective equipment (PPE)		
Type of PPE (gloves, respirator, face-shield etc)	Chemical goggles	To reduce exposure of the eye to a negligible level
Other risk management measures related to workers		
	Minimise number of staff exposed	
	Segregation of the emitting process	

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Information type	Data field	Explanation
	Effective contaminant extraction	
	Minimisation of manual phases	
	Avoidance of contact with contaminated tools and objects	
	Regular cleaning of equipment and work area	
	Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed	
	Training for staff on good practice	
	Good standard of personal hygiene	

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out above.

1.2. Exposure estimation

Not performed, qualitative assessment.

2. Industrial use of calcium nitrate for formulation of preparations, intermediate use and end-use in industrial settings, including distribution and other activities related to the processes in industrial settings

2.1. Exposure scenario

2.1.1. Description of activities and processes covered in the exposure scenario.

Industrial use of calcium nitrate for formulation of preparations, intermediate use and end-use in industrial settings: SU3/10, PC0(K35000)/4/9a/11/12/14/16/20/21/34/35/37/39, PROC1/2/3/4/5/7/8a/8b/9/10/13/14/15, ERC2/4/5/6a/6b/6d/7

2.1.2. Control of workers exposure

Table 5. Worst case operational conditions and risk management measures

Frequency and duration of use			
	Value	Unit	Remarks
Duration of worker exposure	> 4	hours/day	
Product characteristics			
Physical state of the substance/product	Solid/liquid	solid/liquid	product can be solid or liquid (water solution)
Volatility of the substance/product	low	hPa	volatility of the substance
Relative molecular weight of the substance	164.08		Needed to calculate from ppm to mg/m ³
Concentration of substance in product	>25	%	Substance as such/in mixture at different concentrations
Operational conditions not accessible for risk management			
Is the activity performed inside or outside?	Inside		
Conditions and measures at process level (source) to prevent/limit release/exposure			
Conditions and measures related to control of dispersion towards the worker			
Is local exhaust ventilation needed?	No		
Conditions and measures related to personal protective equipment and hygiene			
Is respiratory protection needed?	No		
Is skin protection needed?	No		

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Calcium nitrate, the hydrated form and/or water solution relevant for this scenario, is classified R22 (acute harmful via oral route) and R41 (corrosive to eyes) according to 67/548 EEC and is classified H302 and H318 according to CLP. Exposure of the eye to dust/splashes at concentrations leading to irritation/corrosion during industrial use of calcium nitrate can occur. The oral route is not considered relevant for this scenario, as under normal operating conditions workers will not be exposed via this route.

2.1.3. Risk management measures

The risk management measures related to workers can be found in Table 6. Because calcium nitrate is irritating/corrosive to eyes, the risk management measures for human health aim to avoid direct contact with the substance. According to table E.3-1 of the ECHA guidance part E classification with R22/H302 does not trigger additional risk management measures.

Table 6. Risk management measures related to workers at industrial sites

Information type	Data field	Explanation
Containment and local exhaust ventilation		
Containment plus good work practice required	Containment as appropriate	
Local exhaust ventilation required plus good work practise	Good standard of general ventilation	
Personal protective equipment (PPE)		
Type of PPE (gloves, respirator, face-shield etc)	Chemical goggles	To reduce exposure of the eye to a negligible level
Other risk management measures related to workers		
	Minimise number of staff exposed	
	Segregation of the emitting process	
	Effective contaminant extraction	
	Minimisation of manual phases	
	Avoidance of contact with contaminated tools and objects	
	Regular cleaning of equipment and work area	
	Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed	
	Training for staff on good practice	
	Good standard of personal hygiene	
	Product/substance Safety Data Sheet	

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out above.

2.2. Exposure related to reaction mass of calcium nitrate, magnesium nitrate and nitric acid

The manufacturing and industrial using of reaction mass of calcium nitrate, magnesium nitrate and nitric acid are also closed batch processes (PROC3). The oral and inhalative route is not considered relevant, as under normal operating conditions workers will not be exposed via these routes. Personal protective equipments are recommended during such working activities when exposure possible (e.g. sampling, maintenance or cleaning).

2.2.1 Risk management measures related to workers

The risk management measures related to workers can be found in Table 7. Because substance is slightly corrosive, the risk management measures for human health should focus on the prevention of direct contact with the substance. For this reason, automated and closed systems should preferably be used for industrial uses of nitric acid. Respiratory protection is needed when aerosols of nitric acid can be formed. Due to the corrosive properties appropriate skin and eye protection is required.

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Table 7. Risk management measures related to worker

Information type	Data field	Explanation
Containment and local exhaust ventilation		
Containment plus good work practice required	Containment as appropriate	
Local exhaust ventilation required plus good work practise	Good standard of general ventilation	
Personal protective equipment (PPE)		
Type of PPE (gloves, respirator, face-shield etc)	Hand protection: in case of dermal contact, use impervious chemical resistant protective gloves complying with EN 374: material: butyl rubber, PVC, PTFE fluoro elastomer. Eye protection: if splashes are likely to occur, chemical safety goggles e.g. EN 166 If splashes are likely to occur, wear suitable acid resistant protective clothing and rubber boots	To reduce exposure of eyes and skin to a negligible level
Other risk management measures related to workers		
	Minimise number of staff exposed	
	Segregation of the emitting process	
	Effective contaminant extraction	
	Minimisation of manual phases	
	Avoidance of contact with contaminated tools and objects	
	Regular cleaning of equipment and work area	
	Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed	
	Training for staff on good practice	
	Good standard of personal hygiene	

2.2. Exposure estimation

Not performed, qualitative assessment.

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3. Professional end-use of calcium nitrate

3.1. Exposure scenario

3.1.1. Description of activities and processes covered in the exposure scenario.

Professional end-use of calcium nitrate: SU22, PC4/12/14/16/20/21/35, PROC1/2/5/8a/8b/9/10/13/15/20, ERC8a/8b/8c/8d/8e/9a/9b

3.1.2. Control of workers exposure

Table 8. Worst case operational conditions and risk management measures

Frequency and duration of use			
	Value	Unit	Remarks
Duration of worker exposure	> 4	hours/day	
Product characteristics			
Physical state of the substance/product	Solid/liquid	solid/liquid	Product can be solid or liquid (water solution)
Volatility of the substance/product	low	hPa	volatility of the substance
Relative molecular weight of the substance	164.08		Needed to calculate from ppm to mg/m ³
Concentration of substance in product	>25	%	Calcium nitrate can occur in different concentrations in the endproducts
Operational conditions not accessible for risk management			
Is the activity performed inside or outside?	Inside/outside		
Conditions and measures at process level (source) to prevent/limit release/exposure			
Conditions and measures related to control of dispersion towards the worker			
Is local exhaust ventilation needed?	No		
Conditions and measures related to personal protective equipment and hygiene			
Is respiratory protection needed?	No		
Is skin protection needed?	No		

Calcium nitrate, the hydrated form relevant for this scenario, is classified R22 (acute harmful via oral route) and R41 (corrosive to eyes) according to 67/548 EEC and is classified H302 and H318 according to CLP. Exposure of the eye to dust/splashes at concentrations leading to irritation/corrosion during professional use of calcium nitrate can occur. However, it has to be noted that the endproducts are further diluted which can lead to levels at which no eye irritation will occur. The oral route is not considered relevant for this scenario, as under normal operating conditions workers will not be exposed via this route.

3.1.3. Risk management measures related to professionals

Because calcium nitrate is irritating/corrosive to eyes, the risk management measures for human health should focus on the prevention of direct contact with the substance. Product related design measures preventing direct eye contact with calcium nitrate and preventing formation of dust and splashes are more important in addition to the personal protective equipment measures. According to table E.3-1 of the ECHA guidance part E classification with R22/H302 does not trigger additional risk management measures.

Product related operational measures are required. These include specific dispensers and pumps etc specifically designed to prevent splashes/spills/exposure to occur.

Table 9 gives an overview of the personal protective equipment recommendations. The degree of restriction depends on the concentration of calcium nitrate in the preparation.

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Table 9. Risk management measures related to workers in professional settings

Information type	Data field	Explanation
Containment and local exhaust ventilation		
Containment plus good work practice required	Containment as appropriate	
Local exhaust ventilation required plus good work practise	Good standard of general ventilation	
Personal protective equipment (PPE)		
Type of PPE (gloves, respirator, face-shield etc)	Chemical goggles	To reduce exposure of the eye to a negligible level
Other risk management measures related to workers		
	Minimise number of staff exposed	
	Segregation of the emitting process	
	Effective contaminant extraction	
	Minimisation of manual phases	
	Avoidance of contact with contaminated tools and objects	
	Regular cleaning of equipment and work area	
	Management/supervision in place to check that the RMMs in place are being used correctly and OCs followed	
	Training for staff on good practice	
	Good standard of personal hygiene	
	Product/substance Safety Data Sheet	

Additional good practices (Operational Conditions and Risk Management Measures) beyond the REACH Chemical Safety Assessment established within Chemical Industry are also advised and communicated through Safety Data Sheets but are not necessarily required to control risk as laid out above.

3.2. Exposure estimation

Not performed, qualitative assessment.

4. Consumer end-use of fertilizers and other products

4.1. Exposure scenario

4.1.1. Description of activities and processes covered in the exposure scenario.

Consumer end-use of fertilizers and other products: SU21, PC4/12/35/39, ERC8a/8b/8d/8e/10a

4.1.2. Control of consumers exposure

Table 10. Risk management measures related to consumers' use

Information type	Data field	Explanation
Personal protective equipment (PPE) required under regular conditions of consumer use		
Type of PPE (gloves, etc)	goggles	To reduce exposure of the eye to a negligible level
Instructions addressed to consumers		
	Product labelling	

CALCIUM NITRATE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Calcium nitrate, the hydrated form relevant for this scenario, is classified R22 (acute harmful via oral route) and R41 (corrosive to eyes) according to 67/548 EEC and is classified H302 and H318 according to CLP. Exposure of the eye to dust/splashes at concentrations leading to irritation during consumer use of calcium nitrate can occur. However, it has to be noted that the endproducts are further diluted which can lead to levels at which no eye irritation will occur. The oral route is not considered relevant for this scenario, as during normal use consumers will not be exposed via this route.

Exposure to eye irritating dilutions of calcium nitrate can occur during consumer use of fertilizers and the other products. No exposure to the substance is expected from the use of construction chemicals. Consumer use of cosmetics is exempted from the REACH Regulation. It is assumed that during normal use exposure will only occur incidentally. Furthermore, it is assumed that existing controls (i.e. personal protective equipment based on classification and labelling with R41 and H318) are applied for these exposure situations.

4.2. Exposure estimation

Not performed, qualitative assessment.

RISK CHARACTERISATION

1. Manufacturing of the substance

1.1. Human health

1.1.1. Workers

Exposure of the eye to dust/splashes at concentrations leading to irritation during manufacturing of calcium nitrate can occur. When existing controls (i.e. engineering controls and personal protective equipment based on classification and labelling with R41 and H318) are applied the substance is of no concern for workers

1.1.2. Consumers

Not relevant.

1.1.3. Indirect exposure of humans via the environment

Not relevant as no environmental assessment was done and the leading effect is eye irritation/corrosion which should not be considered relevant for the route man exposed via the environment.

1.2. Environment

An environmental assessment has not been performed.

2. Industrial use of calcium nitrate for formulation of preparations, intermediate use and end-use in industrial settings, including distribution and other activities related to the processes in industrial settings

2.1. Human health

2.1.1. Workers

Exposure of the eye to dust/splashes at concentrations leading to irritation/corrosion during industrial processes and use in industrial settings of calcium nitrate can occur. When existing controls (i.e. engineering controls and personal protective equipment based on classification and labelling with R41 and H318) are applied the substance is of no concern for workers.

CALCIUM NITRATE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

The reaction mass containing 5-20% nitric acid is corrosive. When existing controls (i.e. engineering controls and personal protective equipment based on classification and labelling with H314) are applied the substance is of no concern for workers.

2.1.2. Consumers

Not relevant.

2.1.3. Indirect exposure of humans via the environment

Not relevant as no environmental assessment was done and the leading effect is eye irritation/corrosion which should not be considered relevant for the route man exposed via the environment.

2.2. Environment

An environmental assessment has not been performed.

3. Professional end-use of calcium nitrate

3.1. Human health

3.1.1. Workers

Exposure of the eye to dust/splashes at concentrations leading to irritation/corrosion during professional use of calcium nitrate can occur. When existing controls (i.e. engineering controls and personal protective equipment based on classification and labelling with R41 and H318) are applied the substance is of no concern for workers.

3.1.2. Consumers

Not relevant.

3.1.3. Indirect exposure of humans via the environment

Not relevant as no environmental assessment was done and the leading effect is eye irritation/corrosion which should not be considered relevant for the route man exposed via the environment.

3.2. Environment

An environmental assessment has not been performed.

4. Consumer end-use of fertilizers and other products

4.1. Human health

4.1.1. Workers

Not relevant.

4.1.2. Consumers

Exposure to eye irritating/corrosive dilutions of calcium nitrate can occur during consumer use of fertilizers and other products. It is assumed that during normal use exposure will only occur incidentally. Furthermore, it is assumed that existing controls (i.e. personal protective equipment based on classification and labelling with R41 and H318) are applied for these exposure situations. Therefore, it is concluded that calcium nitrate is of no concern for consumers with regard to eye irritation/corrosion for all scenarios described.

4.1.3. Indirect exposure of humans via the environment

CALCIUM NITRATE

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Not relevant as no environmental assessment was done and the leading effect is eye irritation/corrosion which should not be considered relevant for the route man exposed via the environment.

4.2. Environment

An environmental assessment has not been performed.

5. Overall exposure (combined for all relevant emission/release sources)

5.1. Human health (combined for all exposure routes)

Not relevant.

5.2. Environment (combined for all emission sources)

Not relevant.