

Ficha de dados de segurança

De acordo com o Anexo II de REACH - Regulamento 2015/830

SECÇÃO 1. Identificação da substância/mistura e da sociedade/empresa

1.1. Identificador do produto

Código: **72301100Z**
Denominação: **RICORDI MATERIA**

1.2. Utilizações identificadas relevantes da substância ou mistura e utilizações desaconselhadas

Descrição/Utilização: **Estuque mineral "Estuque Veneziano" à base de cal**

Usos identificados	Industriais	Profissionais	Consumidores
Proteção de pré-fabricados	-	✓	-

1.3. Identificação do fornecedor da ficha de dados de segurança

Razão Social: **FASSA S.r.l.**
Morada: **via Lazzaris, 3**
Localidade e Estado: **31027 Spresiano (TV)**
ITALIA
tel. **Tel. +39 (0)422 7222**
fax **Fax: +39 (0)422 887509**

Endereço electrónico da pessoa responsável pela ficha de dados de segurança: **laboratorio.spresiano@fassabortolo.it**

1.4. Número de telefone de emergência

Para informações urgentes dirigir-se a: **CIAV Centro de Informação Antivenenos: Rua Almirante Barroso, 36 1000-013 Lisboa Tel.Urgencia (Consultas): 808 250 143**

SECÇÃO 2. Identificação dos perigos

2.1. Classificação da substância ou mistura

O produto é classificado perigoso nos termos das disposições a que se referem do Regulamento (CE) 1272/2008 (CLP) (e alterações e adequações subsequentes). O produto portanto exige uma ficha de dados de segurança de acordo com as disposições do Regulamento (UE) 2015/830.

Eventuais informações adicionais relativas aos riscos para a saúde e/ou ao ambiente constam das secç. 11 e 12 da presente ficha.

Classificação e indicação de perigo:

Lesões oculares graves, categorias 1	H318	Provoca lesões oculares graves.
Irritação cutânea, categorias 2	H315	Provoca irritação cutânea.
Toxicidade para órgãos-alvo específicos - exposição única, categorias 3	H335	Pode provocar irritação das vias respiratórias.

2.2. Elementos do rótulo

Etiquetagem de perigo nos termos do Regulamento (CE) 1272/2008 (CLP) e alterações e adequações subsequentes.

Pictogramas de perigo:



Palavras-sinal: Perigo

Advertências de perigo:

H318	Provoca lesões oculares graves.
H315	Provoca irritação cutânea.

SECÇÃO 2. Identificação dos perigos ... / >>

H335 Pode provocar irritação das vias respiratórias.

Recomendações de prudência:

P261 Evitar respirar as poeiras / fumos / gases / névoas / vapores / aerossóis.
P264 Lavar perfeitamente com água depois de usar
P280 Usar luvas de proteção e proteção ocular / facial.
P305+P351+P338 SE ENTRAR EM CONTACTO COM OS OLHOS: enxaguar cuidadosamente com água durante vários minutos. Se usar lentes de contacto, retire-as, se tal lhe for possível. Continue a enxaguar.
P310 Contacte imediatamente um CENTRO DE INFORMAÇÃO ANTIVENENOS / médico
P501 Eliminar o produto/recipiente em conformidade com a regulamentação nacional

Contém: Hidróxido de cálcio

2.3. Outros perigos

Com base nos dados disponíveis, o produto não contém substâncias PBT ou vPvB em percentagem superior a 0,1%.

SECÇÃO 3. Composição/informação sobre os componentes
3.1. Substâncias

Informação não pertinente

3.2. Misturas

Contém:

Identificação	x = Conc. %	Classificação 1272/2008 (CLP)
Hidróxido de cálcio		
CAS	1305-62-0 20 ≤ x < 30	Eye Dam. 1 H318, Skin Irrit. 2 H315, STOT SE 3 H335
CE	215-137-3	
INDEX		
Nr. Reg.	01-2119475151-45-0201	

O texto completo das indicações de perigo (H) consta da secção 16 da ficha.

SECÇÃO 4. Medidas de primeiros socorros
4.1. Descrição das medidas de primeiros socorros

OLHOS: Eliminar eventuais lentes de contacto. Lavar-se de imediato e com bastante água por pelo menos 15 minutos, abrindo bem as pálpebras. Se o problema persistir consultar um médico.
PELE: Tirar as roupas contaminadas. Lavar-se imediatamente e com bastante água. Se a irritação persistir, consultar um médico. Lavar o vestuário contaminado antes de voltá-lo a utilizar.
INALAÇÃO: Transportar o sujeito ao ar livre. Se a respiração for difícil, chamar de imediato um médico.
INGESTÃO: Consultar de imediato um médico. Provocar o vômito só sobre indicação do médico. Não subministrar nada por via oral se o sujeito estiver inconsciente e se não autorizados pelo médico.

4.2. Sintomas e efeitos mais importantes, tanto agudos como retardados

Não existem informações específicas conhecidas sobre sintomas e efeitos provocados pelo produto.

4.3. Indicações sobre cuidados médicos urgentes e tratamentos especiais necessários

Informações não disponíveis

SECÇÃO 5. Medidas de combate a incêndios
5.1. Meios de extinção

MEIOS DE EXTINÇÃO IDÓNEOS
 Os meios de extinção são os tradicionais: anidrido carbónico, espuma, poeira e água nebulizada.
MEIOS DE EXTINÇÃO NÃO IDÓNEOS
 Nenhum em especial.

SECÇÃO 5. Medidas de combate a incêndios ... / >>**5.2. Perigos especiais decorrentes da substância ou mistura**

PERIGOS DEVIDOS À EXPOSIÇÃO EM CASO DE INCÊNDIO
Evitar respirar os produtos de combustão.

5.3. Recomendações para o pessoal de combate a incêndios**INFORMAÇÕES GERAIS**

Arrefecer com jactos de água os contentores para evitar a decomposição do produto e o desenvolvimento de substâncias potencialmente perigosas para a saúde. Usar sempre o equipamento completo de protecção contra incêndios. Recolher as águas de apagamento que não devem ser descarregadas nos esgotos. Eliminar a água contaminada usada para a extinção e o resíduo do incêndio segundo as normas em vigor.

EQUIPAMENTO

Vestuário normal para as pessoas envolvidas no combate a incêndios, como um aparelho respiratório de ar comprimido de circuito aberto (EN 137) dotado de antichama (EN469), luvas antichamas (EN 659) e botas para Bombeiros (HO A29 ou A30).

SECÇÃO 6. Medidas a tomar em caso de fugas acidentais**6.1. Precauções individuais, equipamento de protecção e procedimentos de emergência**

Bloquear a perda se não houver perigo.

Usar equipamento de protecção adequado (incluindo o equipamento de protecção individual referido na secção 8 da ficha de dados de segurança) a fim de prevenir qualquer contaminação da pele, dos olhos e do vestuário. Estas indicações são válidas tanto para os encarregados das manufaturações como para as operações em emergência.

6.2. Precauções a nível ambiental

Impedir que o produto penetre nos esgotos, nas águas superficiais, nos lençóis freáticos.

6.3. Métodos e materiais de confinamento e limpeza

Aspirar o produto derramado em recipiente apropriado. Avaliar a compatibilidade do recipiente a utilizar com o produto, verificando a secção 10. Absorver o produto restante com material absorvente inerte.

Proceder a uma ventilação suficiente do local afectado pelo derrame. A eliminação do material contaminado tem de ser efectuada de acordo com as disposições do ponto 13.

6.4. Remissão para outras secções

Eventuais informações que dizem respeito à protecção individual e a eliminação estão indicadas nas secções 8 e 13.

SECÇÃO 7. Manuseamento e armazenagem**7.1. Precauções para um manuseamento seguro**

Manusear o produto depois de ter consultado todas as outras secções desta ficha de segurança. Evitar dispersar o produto no ambiente. Não comer, nem beber, nem fumar durante o uso.

Produto de uso profissional. Consulte sempre a ficha técnica e de segurança antes da utilização. Em caso de contacto com a pele, lave abundantemente com água e sabão. Durante a utilização, areje bem os locais.

7.2. Condições de armazenagem segura, incluindo eventuais incompatibilidades

Manter o produto em contentores devidamente rotulados. Conservar os contentores longe de eventuais materiais incompatíveis, verificando a secção 10.

7.3. Utilização(ões) final(is) específica(s)

Informações não disponíveis

SECÇÃO 8. Controlo da exposição/Proteção individual

8.1. Parâmetros de controlo

Referências Normas:

AUS	Österreich	Grenzwerteverordnung 2011 - GKV 2011
BEL	Belgique	AR du 11/3/2002. La liste est mise à jour pour 2010
CHE	Suisse / Schweiz	Valeurs limites d'exposition aux postes de travail 2014. / Grenzwerte am Arbeitsplatz
ESP	España	INSHT - Límites de exposición profesional para agentes químicos en España 2017
FRA	France	JORF n°0109 du 10 mai 2012 page 8773 texte n° 102
GBR	United Kingdom	EH40/2005 Workplace exposure limits
GRC	Ελλάδα	ΕΦΗΜΕΡΙΣ ΤΗΣ ΚΥΒΕΡΝΗΣΕΩΣ - ΤΕΥΧΟΣ ΠΡΩΤΟ Αρ. Φύλλου 19 - 9 Φεβρουαρίου 2012
HUN	Magyarország	50/2011. (XII. 22.) NGM rendelet a munkahelyek kémiai biztonságáról
NLD	Nederland	Databank of the social and Economic Council of Netherlands (SER) Values, AF 2011:18
SVK	Slovensko	NARIADENIE VLÁDY Slovenskej republiky z 20. júna 2007
EU	OEL EU	Directiva (UE) 2017/2398; Directiva (UE) 2017/164; Directiva 2009/161/UE; Directiva 2006/15/EC; Directiva 2004/37/EC; Directiva 2000/39/EC; Directiva 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

Hidróxido de cálcio

Valor limite de limiar					
Tipo	Estado	TWA/8h		STEL/15min	
		mg/m3	ppm	mg/m3	ppm
MAK	AUS	2		4	
VLEP	BEL	5			
MAK	CHE	5			INALÁV
VLA	ESP	5			
VLEP	FRA	5			
WEL	GBR	5			
TLV	GRC	5			
AK	HUN	5			
MAC	NLD	5			
NPHV	SVK	5			
OEL	EU	1			
TLV-ACGIH		5			

Concentração prevista de não efeito sobre o ambiente - PNEC

Valor de referência em água doce	0,49	mg/l
Valor de referência em água marinha	0,32	mg/l
Valor de referência para os microrganismos STP	3	mg/l
Valor de referência para o compartimento terrestre	1080	mg/kg

Saúde - Nível decorrente de não efeito - DNEL /DMEL

Via de exposição	Efeitos sobre os consumidores				Efeitos sobre os trabalhadores			
	Locais		Sistém		Locais		Sistém	
	agudos	crónicos	agudos	crónicos	agudos	crónicos	agudos	crónicos
Inalação	4	1	4	1	4	1	4	1
	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3	mg/m3

Legenda:

(C) = CEILING ; INALÁV = Fracção Inalável ; RESPIR = Fracção Respirável ; TORAX = Fracção Torácica.

VND = perigo identificado mas nenhum DNEL/PNEC disponível ; NEA = nenhuma exposição prevista ; NPI = nenhum perigo identificado.

8.2. Controlo da exposição

Observar as medidas de segurança habituais no manuseamento de substâncias químicas.

Prever duche de emergência com bacia rosto-ocular.

PROTECÇÃO DAS MÃOS

Caso seja previsto um contacto prolongado com o produto, aconselha-se proteger as mãos com luvas de trabalho resistentes à penetração (ref. norma EN 374).

O material das luvas de trabalho tem de ser escolhido com base no processo de uso e nos produtos que se podem formar. Recordar-se ainda que as luvas em látex podem dar origem a fenómenos de sensibilização.

PROTECÇÃO DA PELE

Usar vestuário de trabalho com mangas compridas e calçado de segurança para uso profissional de categoria I (ref. Regulamento 2016/425 e norma EN ISO 20344). Lavar-se com água e sabão depois de ter removido o vestuário de protecção.

PROTECÇÃO DOS OLHOS

Aconselha-se usar óculos de protecção herméticos (ref. norma EN 166).

SECÇÃO 8. Controlo da exposição/Protecção individual ... / >>

PROTECÇÃO RESPIRATÓRIA não necessária, salvo indicação diferente na avaliação do risco químico.

CONTROLES DA EXPOSIÇÃO AMBIENTAL

As emissões de processos de produção, incluídas as de equipamentos de ventilação, deveriam ser controladas de acordo com a normativa de protecção do ambiente.

SECÇÃO 9. Propriedades físico-químicas
9.1. Informações sobre propriedades físicas e químicas de base

Estado Físico	pastoso
Cor	Característico para cada tinta
Cheiro	característico
Limiar olfactivo	Não disponível
pH	11-13
Ponto de fusão ou de congelação	Não disponível
Ponto de ebulição inicial	Não disponível
Intervalo de ebulição	Não disponível
Ponto de inflamação	> 60 C
Velocidade de evaporação	Não disponível
Inflamabilidade de sólido e gás	não inflamável
Limite inferior inflamabilidade	Não disponível
Limite superior inflamabilidade	Não disponível
Limite inferior explosividade	Não disponível
Limite superior explosividade	Não disponível
Pressão de vapor	Não disponível
Densidade Vapores	Não disponível
Densidade relativa	1,65-1,75
Solubilidade	Não disponível
Coefficiente de partição:n-octanol/água	Não disponível
Temperatura de auto-ignição	Não disponível
Temperatura de decomposição	Não disponível
Viscosidade	Não disponível
Propriedades explosivas	Não disponível
Propriedades comburentes	Não disponível

9.2. Outras informações

Valor limite UE para o conteúdo de COV (Diretiva 2004/42/CE) Categoria A/I, BA: COV máximo 200 g/l (janeiro 2010); COV produto branco < 1 g/l; produto colorido < 15 g/l

SECÇÃO 10. Estabilidade e reatividade
10.1. Reatividade

Não existem perigos de reacção especiais com outras substâncias nas condições de utilização normais.

10.2. Estabilidade química

O produto é estável nas condições normais de utilização e de armazenamento.

10.3. Possibilidade de reacções perigosas

Em condições de uso e armazenagem normais não são previsíveis reacções perigosas.

10.4. Condições a evitar

Nenhuma em especial. No entanto respeitar as precauções habituais relativamente aos produtos químicos.

10.5. Materiais incompatíveis

Informações não disponíveis

SECÇÃO 10. Estabilidade e reatividade ... / >>**10.6. Produtos de decomposição perigosos**

Informações não disponíveis

SECÇÃO 11. Informação toxicológica**11.1. Informações sobre os efeitos toxicológicos**Metabolismo, cinética, mecanismo de ação e outras informações

Informações não disponíveis

Informações sobre vias de exposição prováveis

Informações não disponíveis

Efeitos imediatos e retardados e efeitos crónicos decorrentes de exposição breve e prolongada

Informações não disponíveis

Interações

Informações não disponíveis

TOXICIDADE AGUDA

LC50 (Inalação) da mistura:

Não classificado (nenhum componente relevante)

LD50 (Oral) da mistura:

Não classificado (nenhum componente relevante)

LD50 (Cutânea) da mistura:

Não classificado (nenhum componente relevante)

Hidróxido de cálcio

LD50 (Oral)

> 2000 mg/kg (Rat, OECD 425)

LD50 Cutânea)

> 2500 mg/kg (Rabbit, OCSE 402)

CORROSÃO / IRRITAÇÃO CUTÂNEA

Provoca irritação cutânea

LESÕES OCULARES GRAVES / IRRITAÇÃO OCULAR

Provoca lesões oculares graves

SENSIBILIZAÇÃO RESPIRATÓRIA OU CUTÂNEA

Não preenche os critérios de classificação para esta classe de perigo

MUTAGENICIDADE EM CÉLULAS GERMINATIVAS

Não preenche os critérios de classificação para esta classe de perigo

CARCINOGENICIDADE

Não preenche os critérios de classificação para esta classe de perigo

TOXICIDADE REPRODUTIVA

Não preenche os critérios de classificação para esta classe de perigo

TOXICIDADE PARA ÓRGÃOS-ALVO ESPECÍFICOS (STOT) - EXPOSIÇÃO ÚNICA

Pode provocar irritação das vias respiratórias

TOXICIDADE PARA ÓRGÃOS-ALVO ESPECÍFICOS (STOT) - EXPOSIÇÃO REPETIDA

Não preenche os critérios de classificação para esta classe de perigo

PERIGO DE ASPIRAÇÃO

Não preenche os critérios de classificação para esta classe de perigo

SECÇÃO 12. Informação ecológica

12.1. Toxicidade

Hidróxido de cálcio

LC50 - Marine water fish = 457 mg/l; NOEC = 2000 mg/kg; NOEC = 1080 mg/kg (21d)

Hidróxido de cálcio

LC50 - Peixes 50,6 mg/l/96h (pesci d'acqua dolce)

EC50 - Crustáceos 49,1 mg/l/48h

EC50 - Algas / Plantas Aquáticas 184,57 mg/l/72h

NOEC Crónica Crustáceos 32 mg/l 14d

NOEC Crónica Algas/ Plantas Aquáticas 48 mg/l 72h

12.2. Persistência e degradabilidade

Informações não disponíveis

12.3. Potencial de bioacumulação

Informações não disponíveis

12.4. Mobilidade no solo

Informações não disponíveis

12.5. Resultados da avaliação PBT e mPmB

Com base nos dados disponíveis, o produto não contém substâncias PBT ou vPvB em percentagem superior a 0,1%.

12.6. Outros efeitos adversos

Informações não disponíveis

SECÇÃO 13. Considerações relativas à eliminação

13.1. Métodos de tratamento de resíduos

Reutilizar, se possível. Os resíduos do produto são considerados resíduos especiais não perigosos. O perigo dos resíduos que contêm em parte este produto tem de ser avaliado com base nas disposições legais em vigor.

A eliminação tem de ser confiada a uma sociedade autorizada à gestão dos resíduos, segundo as normas nacionais e eventualmente locais.

EMBALAGENS CONTAMINADAS

As embalagens contaminadas devem ser enviadas para serem recuperadas ou eliminadas segundo as normas nacionais da gestão de resíduos.

SECÇÃO 14. Informações relativas ao transporte

O produto não é de considerar-se perigosa nos termos das disposições vigentes em matéria de transporte de mercadorias perigosas sobre estrada (A.D.R.), sobre ferrovia (RID), por mar (IMDG Code) e por avião (IATA).

14.1. Número ONU

Não aplicável

14.2. Designação oficial de transporte da ONU

Não aplicável

14.3. Classes de perigo para efeitos de transporte

Não aplicável

SECÇÃO 14. Informações relativas ao transporte ... / >>**14.4. Grupo de embalagem**

Não aplicável

14.5. Perigos para o ambiente

Não aplicável

14.6. Precauções especiais para o utilizador

Não aplicável

14.7. Transporte a granel em conformidade com o anexo II da Convenção MARPOL e o Código IBC

Informação não pertinente

SECÇÃO 15. Informação sobre regulamentação**15.1. Regulamentação/legislação específica para a substância ou mistura em matéria de saúde, segurança e ambiente**Categoria Seveso - Diretiva 2012/18/CE: NenhumaRestrições relativas ao produto ou às substâncias contidas segundo o Anexo XVII do Regulamento (CE) 1907/2006Produto

Ponto 3

Substâncias em Candidate List (Art. 59 REACH)

Com base nos dados disponíveis, o produto não contém substâncias SVHC em percentagem superior a 0,1%.

Substâncias sujeitas a autorização (Anexo XIV REACH)

Nenhuma

Substâncias sujeitas a obrigação de notificação de exportação Reg. (CE) 649/2012:

Nenhuma

Substâncias sujeitas à Convenção de Roterdão:

Nenhuma

Substâncias sujeitas à Convenção de Estocolmo:

Nenhuma

Controles Sanitários

Os trabalhadores expostos a este agente químico perigoso para a saúde devem submeter-se a vigilância sanitária desde que os resultados da avaliação dos riscos demonstrem que existe apenas um risco moderado para a segurança e a saúde dos trabalhadores e que as medidas previstas pela directiva 98/24/CE sejam suficientes a reduzir o risco.

15.2. Avaliação da segurança química

Foi efectuada uma avaliação de segurança química para as seguintes substâncias contidas:

Hidróxido de cálcio

SECÇÃO 16. Outras informações

Texto das indicações de perigo (H) citadas nas secções 2-3 da ficha:

Eye Dam. 1	Lesões oculares graves, categorias 1
Skin Irrit. 2	Irritação cutânea, categorias 2
STOT SE 3	Toxicidade para órgãos-alvo específicos - exposição única, categorias 3
H318	Provoca lesões oculares graves.
H315	Provoca irritação cutânea.
H335	Pode provocar irritação das vias respiratórias.

LEGENDA:

- ADR: Acordo europeu para o transporte rodoviário das mercadorias perigosas
- CAS NUMBER: Número do Chemical Abstract Service
- CE50: Concentração que produz efeito em 50% da população sujeita a testes

SECÇÃO 16. Outras informações ... / >>

- CE NUMBER: Número de identificação em ESIS (arquivo europeu das substâncias existentes)- CLP: Regulamento CE 1272/2008
- DNEL: Nível derivado sem efeito
- EmS: Emergency Schedule
- GHS: Sistema harmonizado global para a classificação e a rotulagem dos produtos químicos
- IATA DGR: Regulamento para o transporte de mercadorias perigosas da Associação internacional do transporte aéreo
- IC50: Concentração de imobilização de 50% da povoação sujeita a testes
- IMDG: Código marítimo internacional para o transporte das mercadorias perigosas
- IMO: International Maritime Organization
- INDEX NUMBER: O número de identificação consta do Anexo VI do CLP
- LC50: Concentração mortal 50%
- LD50: Dose mortal 50%
- OEL: Nível de exposição ocupacional
- PBT: Persistente, bioacumulante e tóxico, segundo o REACH
- PEC: Concentração ambiental previsível
- PEL: Nível de exposição previsível
- PNEC: Concentração previsível sem efeitos
- REACH: Regulamento CE 1907/2006
- RID: Regulamento para o transporte internacional de combóio de mercadorias perigosas
- TLV: Valor limite de limiar
- TLV CEILING: Concentração que não deve ser ultrapassada em qualquer altura da exposição de trabalho
- TWA STEL: Limite de exposição a curto prazo
- TWA: Limite de exposição a médio prazo
- VOC: Composto orgânico volátil
- vPvB: Muito persistente e muito bioacumulante segundo o REACH
- WGK: Wassergefährdungsklassen (Deutschland).

BIBLIOGRAFIA GERAL:

1. Regulamento (CE) 1907/2006 do Parlamento Europeu (REACH)
2. Regulamento (CE) 1272/2008 do Parlamento Europeu (CLP)
3. Regulamento (UE) 790/2009 do Parlamento Europeu (I Atp. CLP)
4. Regulamento (UE) 2015/830 do Parlamento Europeu
5. Regulamento (UE) 286/2011 do Parlamento Europeu (II Atp. CLP)
6. Regulamento (UE) 618/2012 do Parlamento Europeu (III Atp. CLP)
7. Regulamento (UE) 487/2013 do Parlamento Europeu (IV Atp. CLP)
8. Regulamento (UE) 944/2013 do Parlamento Europeu (V Atp. CLP)
9. Regulamento (UE) 605/2014 do Parlamento Europeu (VI Atp. CLP)
10. Regulamento (UE) 2015/1221 do Parlamento Europeu (VII Atp. CLP)
11. Regulamento (UE) 2016/918 do Parlamento Europeu (VIII Atp. CLP)
12. Regulamento (UE) 2016/1179 (IX Atp. CLP)
13. Regulamento (UE) 2017/776 (X Atp. CLP)
14. Regulamento (UE) 2018/669 (XI Atp. CLP)
15. Regulamento (UE) 2018/1480 (XIII Atp. CLP)
16. Regulamento (UE) 2019/521 (XII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- Site Web IFA GESTIS
- Site Web Agência ECHA
- Base de dados de modelos de SDS de substâncias químicas - Ministério da Saúde e Instituto Superior de Saúde

Nota para o utilizador:

as informações contidas nesta ficha baseiam-se nos nossos conhecimentos à data da última versão. O utilizador deve certificar-se sobre a idoneidade das informações em relação ao uso específico do produto.

Não se deve interpretar este documento como garantia de alguma propriedade específica do produto.

Dado que o uso do produto não abrange o nosso controlo directo, é obrigatório para o utilizador observar sob a própria responsabilidade as leis e as disposições em vigor em matéria de higiene e segurança. Não se assumem responsabilidade para usos impróprios.

Fornecer uma formação apropriada ao pessoal encarregado do uso de produtos químicos.

A classificação do produto é baseada nos métodos de cálculo estabelecidos no anexo I do CLP, salvo se diversamente indicado nas secções 11 e 12.

Os métodos de avaliação das propriedades químico-físicas estão indicados na secção 9.

SECÇÃO 16. Outras informações ... / >>

Modificações em relação à revisão anterior:
Foram feitas alterações nas seguintes secções:
01 / 02 / 03 / 08 / 13.

Version: 1.0/EN

Revision date: February 2013

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EXPOSURE SCENARIOS

The current document includes all relevant occupational and environmental exposure scenarios (ES) for the production and use of calcium dihydroxide as required under the REACH Regulation (Regulation (EC) No 1907/2006). For the development of the ES the Regulation and the relevant REACH Guidance have been considered. For the description of the covered uses and processes, the "R.12 – Use descriptor system" guidance (Version: 2, March 2010, ECHA-2010-G-05-EN), for the description and implementation of risk management measures (RMM) the "R.13 – Risk management measures" guidance (Version: 1.1, May 2008), for the occupational exposure estimation the "R.14 – Occupational exposure estimation" guidance (Version: 2, May 2010, ECHA-2010-G-09-EN) and for the actual environmental exposure assessment the "R.16 – Environmental Exposure Assessment" (Version: 2, May 2010, ECHA-10-G-06-EN) was used.

Methodology used for environmental exposure assessment

The environmental exposure scenarios only address the assessment at the local scale, including municipal sewage treatment plants (STPs) or industrial waste water treatment plants (WWTPs) when applicable, for industrial and professional uses as any effects that might occur is expected to take place on a local scale.

1) Industrial uses (local scale)

The exposure and risk assessment is only relevant for the aquatic environment, when applicable including STPs/WWTPs, as emissions in the industrial stages mainly apply to (waste) water. The aquatic effect and risk assessment only deal with the effect on organisms/ecosystems due to possible pH changes related to OH⁻ discharges. The exposure assessment for the aquatic environment only deals with the possible pH changes in STP effluent and surface water related to the OH⁻ discharges at the local scale and is performed by assessing the resulting pH impact: the surface water pH should not increase above 9 (In general, most aquatic organisms can tolerate pH values in the range of 6-9).

Risk management measures related to the environment aim to avoid discharging calcium dihydroxide solutions into municipal wastewater or to surface water, in case such discharges are expected to cause significant pH changes. Regular control of the pH value during introduction into open waters is required. Discharges should be carried out such that pH changes in receiving surface waters are minimised. The effluent pH is normally measured and can be neutralised easily, as often required by national laws.

2) Professional uses (local scale)

The exposure and risk assessment is only relevant for the aquatic and terrestrial environment. The aquatic effect and risk assessment is determined by the pH effect. Nevertheless, the classical risk characterisation ratio (RCR), based on PEC (predicted environmental concentration) and PNEC (predicted no effect concentration) is calculated. The professional uses on a local scale refer to applications on agricultural or urban soil. The environmental exposure is assessed based on data and a modelling tool. The modelling FOCUS/ Exposit tool is used to assess terrestrial and aquatic exposure (typically conceived for biocidal applications).

Details and scaling approach indications are reported in the specific scenarios.

Methodology used for occupational exposure assessment

By definition an exposure scenario (ES) has to describe under which operational conditions (OC) and risk management measure (RMMs) the substance can be handled safely. This is demonstrated if the

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

estimated exposure level is below the respective derived no-effect level (DNEL), which is expressed in the risk characterisation ratio (RCR). For workers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the scientific committee on occupational exposure limits (SCOEL) being 1 mg/m³ and 4 mg/m³, respectively.

In cases where neither measured data nor analogous data are available, human exposure is assessed with the aid of a modelling tool. At the first tier screening level, the MEASE tool (<http://www.ebrc.de/mease.html>) is used to assess inhalation exposure according to the ECHA guidance (R.14).

Since the SCOEL recommendation refers to respirable dust while the exposure estimates in MEASE reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below when MEASE has been used to derive exposure estimates.

Methodology used for consumer exposure assessment

By definition an ES has to describe under which conditions the substances, preparation or articles can be handled safely. In cases where neither measured data nor analogous data are available, exposure is assessed with the aid of a modelling tool.

For consumers, the repeated dose DNEL for inhalation as well as the acute DNEL for inhalation are based on the respective recommendations of the Scientific Committee on Occupational Exposure Limits (SCOEL), being 1 mg/m³ and 4 mg/m³, respectively.

For inhalation exposure to powders the data, derived from van Hemmen (van Hemmen, 1992: Agricultural pesticide exposure data bases for risk assessment. Rev Environ Contam Toxicol. 126: 1-85.), has been used to calculate the inhalation exposure. The inhalation exposure for consumers is estimated at 15 µg/hr or 0.25 µg/min. For larger tasks the inhalation exposure is expected to be higher. A factor of 10 is suggested when the product amount exceeds 2.5 kg, resulting in the inhalation exposure of 150 µg/hr. To convert these values in mg/m³ a default value of 1.25 m³/hr for the breathing volume under light working conditions will be assumed (van Hemmen, 1992) giving 12 µg/m³ for small tasks and 120 µg/m³ for larger tasks.

When the preparation or substance is applied in granular form or as tablets, reduced exposure to dust was assumed. To take this into account if data about particle size distribution and attrition of the granule are lacking, the model for powder formulations is used, assuming a reduction in dust formation by 10 % according to Becks and Falks (Manual for the authorisation of pesticides. Plant protection products. Chapter 4 Human toxicology; risk operator, worker and bystander, version 1.0., 2006).

For dermal exposure and exposure to the eye a qualitative approach has been followed, as no DNEL could be derived for this route due to the irritating properties of calcium oxide. Oral exposure was not assessed as this is not a foreseeable route of exposure regarding the uses addressed.

Since the SCOEL recommendation refers to respirable dust while the exposure estimates by the model from van Hemmen reflect the inhalable fraction, an additional safety margin is inherently included in the exposure scenarios below, i.e. the exposure estimates are very conservative.

The exposure assessment of calcium dihydroxide professional and industrial and consumer use is performed and organized based on several scenarios. An overview of the scenarios and the coverage of substance life cycle is presented in Table 1.

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Table 1: Overview on exposure scenarios and coverage of substance life cycle

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.1	Manufacture and industrial uses of aqueous solutions of lime substances	X	X	X		X	1	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.2	Manufacture and industrial uses of low dusty solids/powders of lime substances	X	X	X		X	2	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 6, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.3	Manufacture and industrial uses of medium dusty solids/powders of lime substances	X	X	X		X	3	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.4	Manufacture and industrial uses of high dusty solids/powders of lime substances	X	X	X		X	4	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	1, 2, 3, 4, 5, 7, 8a, 8b, 9, 10, 13, 14, 15, 16, 17, 18, 19, 22, 23, 24, 25, 26, 27a, 27b	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 11a
9.5	Manufacture and industrial uses of massive objects containing lime substances	X	X	X		X	5	3; 1, 2a, 2b, 4, 5, 6a, 6b, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	6, 14, 21, 22, 23, 24, 25	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	1, 2, 3, 4, 5, 6a, 6b, 6c, 6d, 7, 12a, 12b, 10a, 10b, 11a, 11b
9.6	Professional uses of aqueous solutions of lime substances		X	X		X	6	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 12, 13, 15, 16, 17, 18, 19	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f
9.7	Professional uses of low dusty solids/powders of lime substances		X	X		X	7	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 21, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Product Category (PC)	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.8	Professional uses of medium dusty solids/powders of lime substances		X	X		X	8	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f, 9a, 9b
9.9	Professional uses of high dusty solids/powders of lime substances		X	X		X	9	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24	1, 2, 3, 7, 8, 9a, 9b, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40	2, 3, 4, 5, 8a, 8b, 9, 10, 13, 15, 16, 17, 18, 19, 25, 26	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	2, 8a, 8b, 8c, 8d, 8e, 8f
9.10	Professional use of lime substances in soil treatment		X	X			10	22	9b	5, 8b, 11, 26		2, 8a, 8b, 8c, 8d, 8e, 8f

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Category (PC) Product	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.11	Professional uses of articles/containers containing lime substances			X		11	22; 1, 5, 6a, 6b, 7, 10, 11, 12, 13, 16, 17, 18, 19, 20, 23, 24		0, 21, 24, 25	1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 13	10a, 11a, 11b, 12a, 12b	
9.12	Consumer use of building and construction material (DIY)				X	12	21	9b, 9a			8	
9.13	Consumer use of CO ₂ absorbent in breathing apparatuses				X	13	21	2			8	
9.14	Consumer use of garden lime/fertilizer				X	14	21	20, 12			8e	

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number	Exposure scenario title	Manufacture	Identified uses			Resulting life cycle stage Service life (for articles)	Linked to Identified Use	Sector of use category (SU)	Chemical Category (PC) Product	Process category (PROC)	Article category (AC)	Environmental release category (ERC)
			Formulation	End use	Consumer							
9.15	Consumer use of lime substances as water treatment chemicals in aquaria				X	15	21	20, 37				8
9.16	Consumer use of cosmetics containing lime substances				X	16	21	39				8

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number 9.6: Professional uses of aqueous solutions of lime substances

Exposure Scenario Format (1) addressing uses carried out by workers			
1. Title			
Free short title	Professional uses of aqueous solutions of lime substances		
Systematic title based on use descriptor	SU22, SU1, SU5, SU6a, SU6b, SU7, SU10, SU11, SU12, SU13, SU16, SU17, SU18, SU19, SU20, SU23, SU24 PC1, PC2, PC3, PC7, PC8, PC9a, PC9b, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC23, PC24, PC25, PC26, PC27, PC28, PC29, PC30, PC31, PC32, PC33, PC34, PC35, PC36, PC37, PC39, PC40 AC1, AC2, AC3, AC4, AC5, AC6, AC7, AC8, AC10, AC11, AC13 (appropriate PROCs and ERCs are given in Section 2 below)		
Processes, tasks and/or activities covered	Processes, tasks and/or activities covered are described in Section 2 below.		
Assessment Method	The assessment of inhalation exposure is based on the exposure estimation tool MEASE. The environmental assessment is based on FOCUS-Exposit.		
2. Operational conditions and risk management measures			
PROC/ERC	REACH definition	Involved tasks	
PROC 2	Use in closed, continuous process with occasional controlled exposure	Further information is provided in the ECHA Guidance on information requirements and chemical safety assessment, Chapter R.12: Use descriptor system (ECHA-2010-G-05-EN).	
PROC 3	Use in closed batch process (synthesis or formulation)		
PROC 4	Use in batch and other process (synthesis) where opportunity for exposure arises		
PROC 5	Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)		
PROC 8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities		
PROC 8b	Transfer of substance or preparation (charging/ discharging) from/to vessels/large containers at dedicated facilities		
PROC 9	Transfer of substance or preparation into small containers (dedicated filling line, including weighing)		
PROC 10	Roller application or brushing		
PROC 11	Non industrial spraying		
PROC 12	Use of blowing agents in manufacture of foam		
PROC 13	Treatment of articles by dipping and pouring		
PROC 15	Use as laboratory reagent		
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected		
PROC 17	Lubrication at high energy conditions and in partly open process		
PROC 18	Greasing at high energy conditions		
PROC 19	Hand-mixing with intimate contact and only PPE available		
ERC2, ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f	Wide dispersive indoor and outdoor use of reactive substances or processing aids in open systems		Calcium dihydroxide is applied in numerous cases of wide dispersive uses: agricultural, forestry, fish and shrimps farming, soil treatment and environmental protection.

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

2.1 Control of workers exposure

Product characteristic

According to the MEASE approach, the substance-intrinsic emission potential is one of the main exposure determinants. This is reflected by an assignment of a so-called fugacity class in the MEASE tool. For operations conducted with solid substances at ambient temperature the fugacity is based on the dustiness of that substance. Whereas in hot metal operations, fugacity is temperature based, taking into account the process temperature and the melting point of the substance. As a third group, high abrasive tasks are based on the level of abrasion instead of the substance intrinsic emission potential. The spraying of aqueous solutions (PROC7 and 11) is assumed to be involved with a medium emission.

PROC	Use in preparation	Content in preparation	Physical form	Emission potential
All applicable PROCs	not restricted		aqueous solution	very low

Amounts used

The actual tonnage handled per shift is not considered to influence the exposure as such for this scenario. Instead, the combination of the scale of operation (industrial vs. professional) and level of containment/automation (as reflected in the PROC) is the main determinant of the process intrinsic emission potential.

Frequency and duration of use/exposure

PROC	Duration of exposure
PROC 11	≤ 240 minutes
All other applicable PROCs	480 minutes (not restricted)

Human factors not influenced by risk management

The shift breathing volume during all process steps reflected in the PROCs is assumed to be 10 m³/shift (8 hours).

Other given operational conditions affecting workers exposure

Since aqueous solutions are not used in hot-metallurgical processes, operational conditions (e.g. process temperature and process pressure) are not considered relevant for occupational exposure assessment of the conducted processes.

Technical conditions and measures at process level (source) to prevent release

Risk management measures at the process level (e.g. containment or segregation of the emission source) are generally not required in the processes.

Technical conditions and measures to control dispersion from source towards the worker

PROC	Level of separation	Localised controls (LC)	Efficiency of LC (according to MEASE)	Further information
PROC 19	Separation of workers from the emission source is generally not required in the conducted processes.	not applicable	na	-
All other applicable PROCs		not required	na	-

Organisational measures to prevent /limit releases, dispersion and exposure

Avoid inhalation or ingestion. General occupational hygiene measures are required to ensure a safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating and smoking at the workplace, the wearing of standard working clothes and shoes unless otherwise stated below. Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Conditions and measures related to personal protection, hygiene and health evaluation				
PROC	Specification of respiratory protective equipment (RPE)	RPE efficiency (assigned protection factor, APF)	Specification of gloves	Further protective personal equipment (PPE)
PROC 11	FFP3 mask	APF=20	Since calcium dihydroxide is classified as irritating to skin, the use of protective gloves is mandatory for all process steps.	Eye protection equipment (e.g. goggles or visors) must be worn, unless potential contact with the eye can be excluded by the nature and type of application (i.e. closed process). Additionally, face protection, protective clothing and safety shoes are required to be worn as appropriate.
PROC 17	FFP1 mask	APF=4		
All other applicable PROCs	not required	na		

Any RPE as defined above shall only be worn if the following principles are implemented in parallel: The duration of work (compare with "duration of exposure" above) should reflect the additional physiological stress for the worker due to the breathing resistance and mass of the RPE itself, due to the increased thermal stress by enclosing the head. In addition, it shall be considered that the worker's capability of using tools and of communicating are reduced during the wearing of RPE.

For reasons as given above, the worker should therefore be (i) healthy (especially in view of medical problems that may affect the use of RPE), (ii) have suitable facial characteristics reducing leakages between face and mask (in view of scars and facial hair). The recommended devices above which rely on a tight face seal will not provide the required protection unless they fit the contours of the face properly and securely.

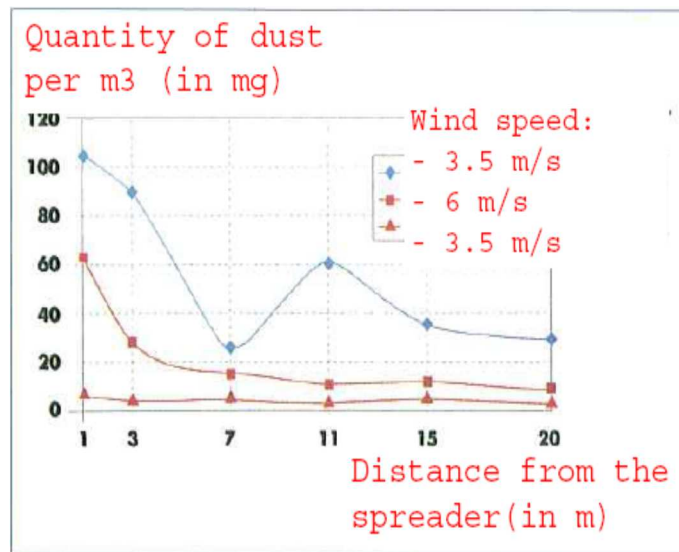
The employer and self-employed persons have legal responsibilities for the maintenance and issue of respiratory protective devices and the management of their correct use in the workplace. Therefore, they should define and document a suitable policy for a respiratory protective device programme including training of the workers.

An overview of the APFs of different RPE (according to BS EN 529:2005) can be found in the glossary of MEASE.

2.2 Control of environmental exposure – only relevant for agricultural soil protection

Product characteristics

Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)



(Figure taken from: Laudet, A. et al., 1999)

Amounts used

Ca(OH)₂ 2,244 kg/ha

Frequency and duration of use

1 day/year (one application per year). Multiple applications during the year are allowed, provided the total yearly amount of 2,244 kg/ha is not exceeded (Ca(OH)₂)

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Environment factors not influenced by risk management																													
Volume of surface water: 300 L/m ² Field surface area: 1 ha																													
Other given operational conditions affecting environmental exposure																													
Outdoor use of products Soil mixing depth: 20 cm																													
Technical conditions and measures at process level (source) to prevent release																													
There are no direct releases to adjacent surface waters.																													
Technical conditions and measures to reduce or limit discharges, air emissions and releases to soil																													
Drift should be minimised.																													
Organizational measures to prevent/limit release from site																													
In line with the requirements for good agricultural practice, agricultural soil should be analysed prior to application of lime and the application rate should be adjusted according to the results of the analysis.																													
2.2 Control of environmental exposure – only relevant for soil treatment in civil engineering																													
Product characteristics																													
Drift: 1% (very worst-case estimate based on data from dust measurements in air as a function of the distance from application)																													
<p>The graph plots 'Quantity of dust per m3 (in mg)' on the y-axis (0 to 120) against 'Distance from the spreader (in m)' on the x-axis (1, 3, 7, 11, 15, 20). Three data series are shown for wind speeds: 3.5 m/s (blue diamonds), 6 m/s (red squares), and 3.5 m/s (red triangles). The 3.5 m/s series starts at ~105 mg/m3 at 1m and drops to ~30 mg/m3 at 20m. The 6 m/s series starts at ~65 mg/m3 at 1m and drops to ~10 mg/m3 at 20m. The 3.5 m/s series starts at ~5 mg/m3 at 1m and remains low, ending at ~5 mg/m3 at 20m.</p> <table border="1"> <caption>Estimated data from the dust drift graph</caption> <thead> <tr> <th>Distance (m)</th> <th>3.5 m/s (mg/m³)</th> <th>6 m/s (mg/m³)</th> <th>3.5 m/s (mg/m³)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>105</td> <td>65</td> <td>5</td> </tr> <tr> <td>3</td> <td>90</td> <td>30</td> <td>5</td> </tr> <tr> <td>7</td> <td>30</td> <td>15</td> <td>5</td> </tr> <tr> <td>11</td> <td>60</td> <td>10</td> <td>5</td> </tr> <tr> <td>15</td> <td>35</td> <td>10</td> <td>5</td> </tr> <tr> <td>20</td> <td>30</td> <td>10</td> <td>5</td> </tr> </tbody> </table>		Distance (m)	3.5 m/s (mg/m ³)	6 m/s (mg/m ³)	3.5 m/s (mg/m ³)	1	105	65	5	3	90	30	5	7	30	15	5	11	60	10	5	15	35	10	5	20	30	10	5
Distance (m)	3.5 m/s (mg/m ³)	6 m/s (mg/m ³)	3.5 m/s (mg/m ³)																										
1	105	65	5																										
3	90	30	5																										
7	30	15	5																										
11	60	10	5																										
15	35	10	5																										
20	30	10	5																										
(Figure taken from: Laudet, A. et al., 1999)																													
Amounts used																													
Ca(OH) ₂	238,208 kg/ha																												
Frequency and duration of use																													
1 day/year and only once in a lifetime. Multiple applications during the year are allowed, provided the total yearly amount of 238,208 kg/ha is not exceeded (Ca(OH) ₂)																													
Environment factors not influenced by risk management																													
Field surface area: 1 ha																													
Other given operational conditions affecting environmental exposure																													
Outdoor use of products Soil mixing depth: 20 cm																													
Technical conditions and measures at process level (source) to prevent release																													
Lime is only applied onto the soil in the technosphere zone before road construction. There are no direct releases to adjacent surface waters.																													

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil				
Drift should be minimised.				
3. Exposure estimation and reference to its source				
Occupational exposure				
The exposure estimation tool MEASE was used for the assessment of inhalation exposure. The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and has to be below 1 to demonstrate a safe use. For inhalation exposure, the RCR is based on the DNEL for calcium dihydroxide of 1 mg/m ³ (as respirable dust) and the respective inhalation exposure estimate derived using MEASE (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction being a sub-fraction of the inhalable fraction according to EN 481.				
PROC	Method used for inhalation exposure assessment	Inhalation exposure estimate (RCR)	Method used for dermal exposure assessment	Dermal exposure estimate (RCR)
PROC 2, 3, 4, 5, 8a, 8b, 9, 10, 11, 12, 13, 15, 16, 17, 18, 19	MEASE	< 1 mg/m ³ (<0.001 – 0.6)	Since calcium dihydroxide is classified as irritating to skin, dermal exposure has to be minimised as far as technically feasible. A DNEL for dermal effects has not been derived. Thus, dermal exposure is not assessed in this exposure scenario.	
Environmental exposure for agricultural soil protection				
The PEC calculation for soil and surface water was based on the FOCUS soil group (FOCUS, 1996) and on the "draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data: once applied on the soil, calcium dihydroxide can indeed migrate then towards surface waters, via drift.				
Environmental emissions	See amounts used			
Exposure concentration in waste water treatment plant (WWTP)	Not relevant for agricultural soil protection			
Exposure concentration in aquatic pelagic compartment	Substance	PEC (ug/L)	PNEC (ug/L)	RCR
	Ca(OH) ₂	7.48	490	0.015
Exposure concentration in sediments	As described above, no exposure of surface water nor sediment to lime is expected. Further, in natural waters the hydroxide ions react with HCO ₃ ⁻ to form water and CO ₃ ²⁻ . CO ₃ ²⁻ forms CaCO ₃ by reacting with Ca ²⁺ . The calcium carbonate precipitates and deposits on the sediment. Calcium carbonate is of low solubility and a constituent of natural soils.			
Exposure concentrations in soil and groundwater	Substance	PEC (mg/L)	PNEC (mg/L)	RCR
	Ca(OH) ₂	660	1080	0.61
Exposure concentration in atmospheric compartment	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below 10 ⁻⁵ Pa.			
Exposure concentration relevant for the food chain (secondary poisoning)	This point is not relevant because calcium dihydroxides can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents (Ca ²⁺ and OH ⁻) in the environment.			

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Environmental exposure for soil treatment in civil engineering				
<p>The soil treatment in civil engineering scenario is based on a road border scenario. At the special road border technical meeting (Ispra, September 5, 2003), EU Member States and industry agreed on a definition for a "road technosphere". The road technosphere can be defined as "the engineered environment that carries the geotechnical functions of the road in connection with its structure, operation and maintenance including the installations to ensure road safety and manage run off. This technosphere, which includes the hard and soft shoulder at the edge of the carriageway, is vertically dictated by the groundwater watertable. The road authority has responsibility for this road technosphere including road safety, road support, prevention of pollution and water management". The road technosphere was therefore excluded as assessment endpoint for risk assessment for the purpose of the existing/new substances regulations. The target zone is the zone beyond the technosphere, to which the environmental risk assessment applies.</p> <p>The PEC calculation for soil was based on the FOCUS soil group (FOCUS, 1996) and on the "draft guidance on the calculation of predicted environmental concentration values (PEC) of plant protection products for soil, ground water, surface water and sediment (Kloskowski et al., 1999). The FOCUS/EXPOSIT modelling tool is preferred to the EUSES as it is more appropriate for agricultural-like application as in this case where parameter as the drift needs to be included in the modelling. FOCUS is a model typically developed for biocidal applications and was further elaborated on the basis of the German EXPOSIT 1.0 model, where parameters such as drifts can be improved according to collected data.</p>				
Environmental emissions	See amounts used			
Exposure concentration in waste water treatment plant (WWTP)	Not relevant for road border scenario			
Exposure concentration in aquatic pelagic compartment	Not relevant for road border scenario			
Exposure concentration in sediments	Not relevant for road border scenario			
Exposure concentrations in soil and groundwater	Substance	PEC (mg/L)	PNEC (mg/L)	RCR
	Ca(OH) ₂	701	1080	0.65
Exposure concentration in atmospheric compartment	This point is not relevant. Calcium dihydroxide is not volatile. The vapour pressures is below 10 ⁻⁵ Pa.			
Exposure concentration relevant for the food chain (secondary poisoning)	This point is not relevant because calcium can be considered to be omnipresent and essential in the environment. The uses covered do not significantly influence the distribution of the constituents (Ca ²⁺ and OH ⁻) in the environment.			
Environmental exposure for other uses				
<p>For all other uses, no quantitative environmental exposure assessment is carried because</p> <ul style="list-style-type: none"> The operational conditions and risk management measures are less stringent than those outlined for agricultural soil protection or soil treatment in civil engineering Lime is an ingredient and chemically bound into a matrix. Releases are negligible and insufficient to cause a pH-shift in soil, wastewater or surface water Lime is specifically used to release CO₂-free breathable air, upon reaction with CO₂. Such applications only relates to the air compartment, where the lime properties are exploited Neutralisation/pH-shift is the intended use and there are no additional impacts beyond those desired. 				

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. This has to be done by showing that they limit the inhalation and dermal exposure to a level below the respective DNEL (given that the processes and activities in question are covered by the PROCs listed above) as given below. If measured data are not available, the DU may make use of an appropriate scaling tool such as MEASE (www.ebrc.de/mease.html) to estimate the associated exposure. The dustiness of the substance used can be determined according to the MEASE glossary. For example, substances with a dustiness less than 2.5 % according to the Rotating Drum Method (RDM) are defined as "low dusty", substances with a dustiness less than 10 % (RDM) are defined as "medium dusty" and substances with a dustiness ≥ 10 % are defined as "high dusty".

DNEL_{inhalation}: 1 mg/m³ (as respirable dust)

Important note: The DU has to be aware of the fact that apart from the long-term DNEL given above, a DNEL for acute effects exists at a level of 4 mg/m³. By demonstrating a safe use when comparing exposure estimates with the long-term DNEL, the acute DNEL is therefore also covered (according to R.14 guidance, acute exposure levels can be derived by multiplying long-term exposure estimates by a factor of 2). When using MEASE for the derivation of exposure estimates, it is noted that the exposure duration should only be reduced to half-shift as a risk management measure (leading to an exposure reduction of 40 %).

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

ES number 9.12: Consumer use of building and construction material (DIY – do it yourself)

Exposure Scenario Format (2) addressing uses carried out by consumers				
1. Title				
Free short title		Consumer use of building and construction material		
Systematic title based on use descriptor		SU21, PC9a, PC9b, ERC8c, ERC8d, ERC8e, ERC8f		
Processes, tasks activities covered		Handling (mixing and filling) of powder formulations Application of liquid, pasty lime preparations.		
Assessment Method*		Human health: A qualitative assessment has been performed for oral and dermal exposure as well as exposure to the eye. Inhalation exposure to dust has been assessed by the Dutch model (van Hemmen, 1992). Environment: A qualitative justification assessment is provided.		
2. Operational conditions and risk management measures				
RMM	No product integrated risk management measures are in place.			
PC/ERC	Description of activity referring to article categories (AC) and environmental release categories (ERC)			
PC 9a, 9b	Mixing and loading of powder containing lime substances. Application of lime plaster, putty or slurry to the walls or ceiling. Post-application exposure.			
ERC 8c, 8d, 8e, 8f	Wide dispersive indoor use resulting in inclusion into or onto a matrix Wide dispersive outdoor use of processing aids in open systems Wide dispersive outdoor use of reactive substances in open systems Wide dispersive outdoor use resulting in inclusion into or onto a matrix			
2.1 Control of consumers exposure				
Product characteristic				
Description of the preparation	Concentration of the substance in the preparation	Physical state of the preparation	Dustiness (if relevant)	Packaging design
Lime substance	100 %	Solid, powder	High, medium and low, depending on the kind of lime substance (indicative value from DIY ¹ fact sheet see section 9.0.3)	Bulk in bags of up to 35 kg.
Plaster, Mortar	20-40%	Solid, powder		
Plaster, Mortar	20-40%	Pasty	-	-
Putty, filler	30-55%	Pasty, highly viscous, thick liquid	-	In tubes or buckets
Pre-mixed lime wash paint	~30%	Solid, powder	High - low (indicative value from DIY ¹ fact sheet see section 9.0.3)	Bulk in bags of up to 35 kg.
Lime wash paint/milk of lime preparation	~ 30 %	Milk of lime preparation	-	-
Amounts used				
Description of the preparation	Amount used per event			
Filler, putty	250 g – 1 kg powder (2:1 powder water) Difficult to determine, because the amount is heavily dependent on the depth and size of the holes to be filled.			
Plaster/lime wash paint	~ 25 kg depending on the size of the room, wall to be treated.			
Floor/wall equalizer	~ 25 kg depending on the size of the room, wall to be equalized.			
Frequency and duration of use/exposure				
Description of task	Duration of exposure per event	frequency of events		
Mixing and loading of lime containing powder.	1.33 min (DIY ¹ -fact sheet, RIVM, Chapter 2.4.2 Mixing and loading of powders)	2/year (DIY ¹ fact sheet)		
Application of lime plaster, putty or slurry to the walls or ceiling	Several minutes - hours	2/year (DIY ¹ fact sheet)		

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Human factors not influenced by risk management				
Description of the task	Population exposed	Breathing rate	Exposed body part	Corresponding skin area [cm ²]
Handling of powder	Adult	1.25 m ³ /hr	Half of both hands	430 (DIY ¹ fact sheet)
Application of liquid, pasty lime preparations.	Adult	NR	Hands and forearms	1900 (DIY ¹ fact sheet)
Other given operational conditions affecting consumers exposure				
Description of the task	Indoor/outdoor	Room volume	Air exchange rate	
Handling of powder	indoor	1 m ³ (personal space, small area around the user)	0.6 hr ⁻¹ (unspecified room)	
Application of liquid, pasty lime preparations.	indoor	NR	NR	
Conditions and measures related to information and behavioural advice to consumers				
<p>In order to avoid health damage DIYers should comply with the same strict protective measures which apply to professional workplaces:</p> <ul style="list-style-type: none"> • Change wet clothing, shoes and gloves immediately. • Protect uncovered areas of skin (arms, legs, face): there are various effective skin protection products which should be used in accordance with a skin protection plan (skin protection, cleansing and care). Cleanse the skin thoroughly after the work and apply a care product. 				
Conditions and measures related to personal protection and hygiene				
<p>In order to avoid health damage DIYers should comply with the same strict protective measures which apply to professional workplaces:</p> <ul style="list-style-type: none"> • When preparing or mixing building materials, during demolition or caulking and, above all, during overhead work, wear protective goggles as well as face masks during dusty work. • Choose work gloves carefully. Leather gloves become wet and can facilitate burns. When working in a wet environment, cotton gloves with plastic covering (nitrile) are better. Wear gauntlet gloves during overhead work because they can considerably reduce the amount of humidity which permeates the working clothes. 				
2.2 Control of environmental exposure				
Product characteristics				
Not relevant for exposure assessment				
Amounts used*				
Not relevant for exposure assessment				
Frequency and duration of use				
Not relevant for exposure assessment				
Environment factors not influenced by risk management				
Default river flow and dilution				
Other given operational conditions affecting environmental exposure				
Indoor Direct discharge to the wastewater is avoided.				
Conditions and measures related to municipal sewage treatment plant				
Default size of municipal sewage system/treatment plant and sludge treatment technique				
Conditions and measures related to external treatment of waste for disposal				
Not relevant for exposure assessment				
Conditions and measures related to external recovery of waste				
Not relevant for exposure assessment				
3. Exposure estimation and reference to its source				
<p>The risk characterisation ratio (RCR) is the quotient of the refined exposure estimate and the respective DNEL (derived no-effect level) and is given in parentheses below. For inhalation exposure, the RCR is based on the acute DNEL for lime substances of 4 mg/m³ (as respirable dust) and the respective inhalation exposure estimate (as inhalable dust). Thus, the RCR includes an additional safety margin since the respirable fraction is a sub-fraction of the inhalable fraction according to EN 481. Since limes are classified as irritating to skin and eyes a qualitative assessment has been performed for dermal exposure and exposure to the eye.</p>				

Version: 1.0/EN

Revision date: February 2013

Printing Date: May 2015

Human exposure		
Handling of powder		
Route of exposure	Exposure estimate	Method used, comments
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.
Dermal	small task: 0.1 µg/cm ² (-) large task: 1 µg/cm ² (-)	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, dermal contact to dust from loading of lime substances or direct contact to the lime cannot be excluded if no protective gloves are worn during application. This may occasionally result in mild irritation easily avoided by prompt rinsing with water. Quantitative assessment The constant rate model of ConsExpo has been used. The contact rate to dust formed while pouring powder has been taken from the DIY ¹ -fact sheet (RIVM report 320104007).
Eye	Dust	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. Dust from loading of the lime substances cannot be excluded if no protective goggles are used. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.
Inhalation	Small task: 12 µg/m ³ (0.003) Large task: 120 µg/m ³ (0.03)	Quantitative assessment Dust formation while pouring the powder is addressed by using the dutch model (van Hemmen, 1992, as described in section 9.0.3.1 above).
Application of liquid, pasty lime preparations.		
Route of exposure	Exposure estimate	Method used, comments
Oral	-	Qualitative assessment Oral exposure does not occur as part of the intended product use.
Dermal	Splashes	Qualitative assessment If risk reduction measures are taken into account no human exposure is expected. However, splashes on the skin cannot be excluded if no protective gloves are worn during the application. Splashes may occasionally result in mild irritation easily avoided by immediate rinsing of the hands with water.
Eye	Splashes	Qualitative assessment If appropriate goggles are worn no exposure to the eyes needs to be expected. However, splashes into the eyes cannot be excluded if no protective goggles are worn during the application of liquid or pasty lime preparations, especially during overhead work. Prompt rinsing with water and seeking medical advice after accidental exposure is advisable.
Inhalation	-	Qualitative assessment Not expected, as the vapour pressure of limes in water is low and generation of mists or aerosols does not take place.
Post-application exposure		
No relevant exposure will be assumed as the aqueous lime preparation will quickly convert to calcium carbonate with carbon dioxide from the atmosphere.		
Environmental exposure		
Referring to the OC/RMMs related to the environment to avoid discharging lime solutions directly into municipal wastewater, the pH of the influent of a municipal wastewater treatment plant is circum-neutral and therefore, there is no exposure to the biological activity. The influent of a municipal wastewater treatment plant is often neutralized anyway and lime may even be used beneficially for pH control of acid wastewater streams that are treated in biological WWTPs. Since the pH of the influent of the municipal treatment plant is circum neutral, the pH impact is negligible on the receiving environmental compartments, such as surface water, sediment and terrestrial compartment.		

End of the safety data sheet