# **SAFETY DATA SHEET**

Date Updated: 2012-04-25

Version: -

Regulation: In accordance with Regulation (EU) 453/2010 (REACH), Annex II

# 1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

## 1.1 Product identifier

Name of product: FLAMDANT (Magnesium hydroxide)

Synonyms: Magnesium dihydroxide

CAS #: 1309-42-8 EC #: 215-170-3

Pre-registration #: 05-2116374391-45-0000

# 1.2 Relevant identified uses of the substance or mixture and uses advised against

Uses by workers in industrial settings

Identified Use (IU) name	Process Category (PROC)	Environ mental Release Categor y (ERC)	Substan ce supplied to that use in form of	Product Category (PC)	Sector of Use (SU)	Subsequent service life relevant for that use	Article Category (AC)	Exposure scenario reference in the CSR
Polymer processing	process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure 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	tion in material		preparatio ns and	Formulation [mixing] of preparation s and/or repackaging (excluding alloys)			
	blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 6: Calendering operations 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 13 : Treatment of							
	articles by dipping and							
	pouring							
	PROC 14 : Production of							
	preparations or articles							
	by tabletting,							
	compression, extrusion,							
	pelletisation							
	PROC 21 : Low energy							
	manipulation of							
	substances bound in							
	materials and/or articles							
	materials and/or articles							
IU number	PROC 1 : Use in closed	ERC 1 :	N/A	PC 0 :	SU 8 :	N/A	N/A	N/A
2:	process, no likelihood of			Other:	Manufactur			
Manufactu	ř .	cture of		Flame	e of bulk,			
re of	PROC 2 : Use in closed,				large scale			
	continuous process with				chemicals			
m	occasional controlled				(including			
hydroxide					petroleum			
and Ande	PROC 3 : Use in closed				products)			
	batch process (synthesis				SU 9:			
	or formulation)				Manufactur			
	PROC 4 : Use in batch				e of fine			
	and other process				chemicals			
	(synthesis) where				Chemicals			
	opportunity for exposure							
	arises							
	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 15 : Use as							
	laboratory reagent							
		ERC 3:	N/A		1	N/A	N/A	N/A
3:	process, no likelihood of			-	Formulatio			
Industrial	exposure	tion in		r -	n [mixing]			
<u> </u>	PROC 2 : Use in closed,	material		ns and	of			
1 -	continuous process with	s		compoun	preparation			
and rubber	occasional controlled	ERC 5 :		ds	s and/or re-			
	exposure	Industri			packaging			
	PROC 3: Use in closed	al use			(excluding			
	batch process (synthesis	resultin			alloys)			
	or formulation)	g in			SU 11:			
	PROC 4 : Use in batch	inclusio			Manufactur			
	and other process	n into or			e of rubber			
	(synthesis) where	onto a			products			
	opportunity for exposure	matrix			SU 12:			
	arises	ERC			Manufactur			
	PROC 5 : Mixing or	6a :			e of plastics			
	blending in batch	Industri			products,			
	processes for	al use			including			
	formulation of	resultin			compoundi			
	preparations and articles	g in			ng and			
	(multistage and/or	manufac			conversion			
	significant contact)	ture of						
	PROC 6 : Calendering	another						
	operations	substanc						
	PROC 8a: Transfer of	e (use of						
	substance or preparation	interme						
	(charging/discharging)	diates)						
	from/to vessels/large	ERC						
	containers at non-	6c :						
	dedicated facilities	Industri						
	PROC 8b : Transfer of	al use of						
	substance or preparation	monom						
	(charging/discharging)	ers for						
	from/to vessels/large	manufac						
	containers at dedicated	ture of						
	facilities	thermop						
	PROC 14: Production of	lastics						
	preparations or articles	ERC						

	by tabletting,	6d :						
	compression, extrusion,	Industri						
	pelletisation	al use of						
	PROC 15 : Use as	process						
	laboratory reagent	regulato						
	PROC 19 : Hand-mixing	rs for						
	with intimate contact and							
	only PPE available	sation						
	PROC 21 : Low energy	processe						
	manipulation of	s in						
	substances bound in	producti						
	materials and/or articles	on of						
	PROC 24 : High	resins,						
		rubbers,						
	work-up of substances	polymer						
	bound in materials	s						
	and/or articles							
IU number	PROC 1 : Use in closed	ERC 2:	N/A	PC 0 :	SU 10:	N/A	N/A	N/A
4:	process, no likelihood of	Formula		Other:	Formulatio			
Formulatio	exposure	tion of		Flame	n [mixing]			
n of flame	PROC 2 : Use in closed,	preparat		retardants	of			
retardants	continuous process with	ions			preparation			
	occasional controlled				s and/or re-			
	exposure				packaging			
	PROC 3: Use in closed				(excluding			
	batch process (synthesis				alloys)			
	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							
	commission at dedicated			<u> </u>	<u> </u>			

IU number 5: Compound s used in transport industry	by tabletting, compression, extrusion, pelletisation PROC 21 : Low energy manipulation of	11a: Wide dispersi ve indoor use of		Polymer preparations and compoun	General manufacturi ng, e.g. machinery, equipment, vehicles,	AC 1 : Vehicles	N/A
IU number 6: Compound s used in electrical application	PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 21: Low energy manipulation of substances bound in materials and/or articles	long-life articles and material s with low release  ERC 11a: Wide dispersi ve indoor use of long-life articles and material	N/A	PC 32: Polymer preparatio ns and compoun ds	Manufactur	AC 2: Machiner y, mechanic al appliance, electrical/ electronic articles	N/A
7 : Compound	PROC 14 : Production of preparations or articles by tabletting,	s with low release ERC 10a:		Polymer preparatio	Building and	Stone, plaster,	N/A
constructio n	pelletisation PROC 21 : Low energy manipulation of substances bound in materials and/or articles	dispersi ve outdoor use of long-life articles and material s with low		ns and compoun ds	constructio n work	cement, glass and ceramic articles AC 7: Metal articles AC 13: Plastic	

		release					articles	
IU number	PROC 1 : Use in closed	ERC 3:	N/A	PC 1:	SU 0 :	N/A	N/A	N/A
8 : Use in	process, no likelihood of		. ,,	Adhesives		,,,,,	1,11	,,,,,
coatings,	exposure	tion in			Industrial			
inks,	PROC 2 : Use in closed,			PC 4 :	uses			
	continuous process with			Anti-	SU 5 :			
roofing	_	ERC 4 :		freeze and	Manufactur			
C	exposure	Industri		de-icing	e of			
	PROC 3 : Use in closed	al use of		products	textiles,			
	batch process (synthesis	processi		PC 9a :	leather, fur			
	or formulation)	ng aids		Coatings	SU 8:			
	PROC 4: Use in batch	in		and	Manufactur			
	and other process	prcesses		paints,	e of bulk,			
	(synthesis) where	and		thinners,	large scale			
	opportunity for exposure	products		paint	chemicals			
	arises	, not		removes	(including			
	PROC 5 : Mixing or	becomin		PC 9b :	petroleum			
	blending in batch	g part of		Fillers,	products)			
	processes for	articles		putties,				
	formulation of	ERC 5:		plasters,				
	preparations and articles	Industri		modelling				
	(multistage and/or	al use		clay				
	significant contact)	resultin		PC 18:				
	PROC 7 : Industrial	g in		Ink and				
	1 7 0	inclusio		toners				
		n into or		PC 23:				
	substance or preparation	onto a		Leather				
	(charging/discharging)	matrix		tanning,				
		ERC		dye,				
	containers at non-	6a :		finishing,				
		Industri		impregnat				
	PROC 8b : Transfer of	al use		ion and				
	substance or preparation			care				
	(charging/discharging)	g in		products				
		manufac		PC 24:				
		ture of		Lubricant				
	facilities	another		s, greases,				
	PROC 10 : Roller	substanc		release				
	11	e (use of		products				
	PROC 13 : Treatment of			PC 31:				
	, ,,	diates)		Polishes				
	ų C	ERC		and wax				
	PROC 15: Use as	6c:		blends PC 32 :				
	laboratory reagent	Industri						
		al use of		Polymer				
		monom		preparatio				
		ers for		ns and				
		manufac ture of		compoun ds				
		ture or		PC 34 :				

T	T	100t: = :	l	Torr4:1			1	1
		lastics		Textile				
		ERC 6d :		dyes, finishing				
		Industri		and				
		al use of						
		process		impregnat ing				
		regulato		products;				
		rs for		including				
		polymer		bleaches				
		sation		and other				
		processe		processin				
		s in		g aids				
		producti		5 aras				
		on of						
		resins,						
		rubbers,						
		polymer						
		s						
IU number	PROC 3 : Use in closed	ERC 2 :	N/A	PC 0 :	SU 10 :	N/A	N/A	N/A
9 : Flame	batch process (synthesis	Formula		Other:	Formulatio			
retardant	or formulation)	tion of		Flame	n [mixing]			
additive		preparat		retardants	of			
for fire		ions			preparation			
extinguishi					s and/or re-			
ng					packaging			
compositio					(excluding			
ns					alloys)			
III number	PROC 14 : Production of	FRC 3 ·	N/A	PC 32 :	SU 0 :	N/A	N/A	N/A
10:		Formula			Other:	1 1/11	1 1/21	1 1/2 1
	by tabletting,	tion in			Recycling			
, ,		material		ns and	recycling			
prastres	pelletisation	s		compoun				
	PROC 21 : Low energy			ds				
	manipulation of			us .				
	substances bound in							
	materials and/or articles							
	PROC 2 : Use in closed,		N/A			N/A	N/A	N/A
	continuous process with				Manufactur			
	occasional controlled	al use of			e of fine			
1	exposure	processi		ph-	chemicals			
1,		ng aids		regulators				
1	1 \	in			Electricity,			
	or formulation)	prcesses		tlocculant	steam, gas			
_	PROC 4 : Use in batch	and .		s,	water			
	and other process	products		_	supply and			
	(synthesis) where	, not		ts,	sewage			
	opportunity for exposure			neutralisat				
	arises	g part of		ion agents				
	PROC 7 : Industrial	articles						

	spraying	ERC						
		8b:						
		Wide						
		dispersi						
		ve						
		indoor						
		use of						
		reactive						
		substanc						
		es in						
		open						
		-						
		systems						
IU number	PROC 7 : Industrial	ERC 5 :	N/A	PC 26 :	SU 6b:	N/A	AC 8 :	N/A
12 : Use as		Industri			Manufactur		Paper	
	PROC 11 : Non	al use		board	e of pulp,		articles	
	industrial spraying	resultin		dye,	paper and		di ticios	
for paper		g in		I -	paper			
ioi papei		inclusio		and	products			
		n into or			<b> *</b>			
				impregnat				
		onto a		ion				
		matrix		products;				
		ERC		including				
		8c:		bleaches				
		Wide		and other				
		dispersi		processin				
		ve		g aids				
		indoor						
		use						
		resultin						
		g in						
		inclusio						
		n into or						
		onto a						
		matrix						
		Induix						
IU number	PROC 4: Use in batch	ERC	N/A	PC 20 :	SU 23 :	YES	N/A	N/A
13 : Use as	and other process	6b :		Products	Electricity,			
1	(synthesis) where	Industri		such as	steam, gas			
	opportunity for exposure			ph-	water			
-	arises	reactive		<u> </u>	supply and			
precipitati		processi			sewage			
on waste		ng aids		, flocculant				
water)		ing ands		s,	- CutiliCit			
water)				precipitan				
				_				
				ts,				
				neutralisat				
				ion agents				
III number	PROC 2 : Use in closed,	EDC 4 ·	NI/A	PC 20 :	SU 6b :	N/A	AC 8 :	N/A
	· ·			Products	Manufactur			1 1/ Δ
	continuous process with	1					Paper	
reactant in	occasional controlled	al use of		such as	e of pulp,			

				n la	momon and		articles	
paper	exposure	processi		ph-	paper and		articles	
peroxide		ng aids		regulators				
bleaching		in		, (1 1	products			
		prcesses		flocculant				
		and		S,				
		products		precipitan				
		, not		ts,				
		becomin		neutralisat				
		g part of		ion agents				
		articles						
IU number	PROC 3 : Use in closed	ERC 2 :	N/A	PC 24 :	SU 10:	N/A	N/A	N/A
15:	batch process (synthesis	Formula		Lubricant	Formulatio			
	or formulation)	tion of			n [mixing]			
	PROC 5 : Mixing or	preparat		release	of			
corrosion	blending in batch	ions		products	preparation			
inhibitors	processes for			products	s and/or re-			
Immortors	formulation of				packaging			
	preparations and articles				(excluding			
	(multistage and/or				alloys)			
	significant contact)				alloys)			
	significant contact)							
IU number	PROC 16 : Using	ERC 4:	N/A	PC 19 :	SU 23 :	N/A	N/A	N/A
		Industri		Intermedi	Electricity,			
	limited exposure to	al use of		ate	steam, gas			
inhibitor	unburned product to be	processi		PC 24 :	water			
(gas	expected	ng aids		Lubricant	supply and			
turbines	1	in		s, greases,				
and		prcesses		release	treatment			
boilers)		and		products				
		products						
		, not						
		becomin						
		g part of						
		articles						
		ERC						
		6b :						
		Industri						
		al use of						
		reactive						
		processi						
		ng aids						
		iig aids						
IU number	PROC 1 : Use in closed	ERC 1:	N/A	PC 19 :	SU 9 :	N/A	N/A	N/A
17 :	process, no likelihood of	Manufa		Intermedi	Manufactur			
Production	exposure	cture of		ate	e of fine			
of		substanc		PC 21:	chemicals			
magnesiu		es		Laborator				
m		ERC		y				
compound		6b :		Chemical				
s		Industri		s				
		al use of						
<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	

		reactive						
		processi						
		ng aids						
IU number	PROC 1 : Use in closed	ERC 2 :	N/A	PC 29 :	SU 10:	N/A	N/A	N/A
18:	process, no likelihood of	Formula		Pharmace	Formulatio			
Manufactu	exposure	tion of		uticals	n [mixing]			
re of		preparat			of			
pharmaceu		ions			preparation			
tical					s and/or re-			
preparatio					packaging			
ns					(excluding			
					alloys)			
	PROC 1 : Use in closed		N/A	PC 29 :		N/A	N/A	N/A
	process, no likelihood of				Formulatio			
Manufactu	exposure	tion of		uticals	n [mixing]			
re of		preparat			of			
pharmaceu		ions			preparation			
tical					s and/or re-			
preparatio					packaging			
ns					(excluding			
					alloys)			
	0	ERC 5 :	N/A	PC 14:	SU 0:	N/A	N/A	N/A
	blending in batch	Industri		Metal	Other:			
	processes for	al use		surface	Manufactur			
0		resultin		treatment				
1	ř *	g in		r	finishing of			
ceramics	(	inclusio		including	~			
and stones	significant contact)	n into or		galvanic	ceramics			
		onto a		and	and stone			
	substance or preparation			electropla				
		ERC		•	codes			
	from/to vessels/large	12a:		products	C23.1,			
		Industri		PC 15 :	C23.3 and			
		al		Non-	C23.7)			
		processi		metal-				
		ng of		surface				
	into small containers	articles		treatment				
	1,	with		products				
	0 0	abrasive		PC 21:				
		techniqu		Laborator				
	11	es (low		У				
	PROC 14 : Production of	release)		Chemical				
	preparations or articles			s				
	by tabletting,							
	compression, extrusion,							
	pelletisation							
	PROC 22 : Potentially							
	closed processing							
	operations with							

21 : Use in PVC	minerals/metals at elevated temperature. Industrial setting  PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)	ERC 2 : Formula tion of preparat ions	Fertilisers PC 32 : Polymer preparatio ns and	Manufactur e of plastics products,	N/A	N/A
22 : Use in production of fertilisers	(multistage and/or significant contact)	ERC 2: Formula tion of preparat ions	Fertilisers	Agriculture, forestry and fishery		N/A
23 : Use in construction	batch process (synthesis or formulation) PROC 5: Mixing or blending in batch processes for formulation of		PC 19 : Intermedi ate	SU 10: Formulatio n [mixing] of preparation s and/or re- packaging (excluding alloys) SU 19: Building and constructio n work	AC 13 : Plastic articles	N/A

IU number	PROC 1 : Use in closed	ERC 4 :	N/A	PC 3 : Air	SU 0 :	N/A	N/A	N/A
	process, no likelihood of		1,11	care	Other:	,,,,,	,,,,	1 1/12
cleaning	exposure	al use of		products	other.			
agents	PROC 2 : Use in closed,			PC 4:				
agents		ng aids		Anti-				
	occasional controlled	in and		freeze and				
	exposure	prcesses		de-icing				
	_	and		products				
	and other process	products		PC 9a:				
	(synthesis) where	, not		Coatings				
	opportunity for exposure	ľ		and				
	arises	g part of		paints,				
	PROC 7 : Industrial	articles		thinners,				
	spraying			paint				
	PROC 8a : Transfer of			removes				
	substance or preparation			PC 9b :				
	(charging/discharging)			Fillers,				
	from/to vessels/large			putties,				
	containers at non-			plasters,				
	dedicated facilities			modelling				
	PROC 8b : Transfer of			clay				
	substance or preparation			PC 24:				
	(charging/discharging)			Lubricant				
	from/to vessels/large			s, greases,				
	containers at dedicated			release				
	facilities			products				
	PROC 10 : Roller							
	application or brushing							
	PROC 13 : Treatment of							
	articles by dipping and							
	pouring							
***		ED C 4	NT / A	DC 0	CIT O	N T / A	N T / A	NT / A
	PROC 1: Use in closed		N/A	PC 0:	SU 0:	N/A	N/A	N/A
	process, no likelihood of			Other:	Other:			
oil field	_ <b>-</b>	al use of		Oilfield	Industrial			
operations	PROC 2 : Use in closed,	r		chemicals				
	continuous process with	l			processing			
	occasional controlled	in			aids			
	exposure PROC 3 : Use in closed	prcesses and						
	or formulation)	products						
	PROC 4 : Use in batch	, not becomin						
	and other process							
	(synthesis) where	g part of articles						
	opportunity for exposure	articies						
	arises							
	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  IU number PROC 1: Use in closed 26 : Use in process, no likelihood of Industri al use of lubricants exposure PROC 2: Use in closed, exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process opportunity for exposure opportunity for exposure and other process (synthesis) where opportunity for exposure PROC 7: Industrial spraying 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
PROC 9 : Transfer of substance or preparation into small containers (dedicated filing line, including weighing) PROC 10 : Roller application or brushing  IU number PROC 1 : Use in closed 26 : Use in process, no likelihood of Industri exposure exposure exposure exposure exposure process with occasional controlled exposure PROC 2 : Use in closed batch process (synthesis or formulation) PROC 3 : Use in batch and other process (synthesis or formulation) PROC 4 : Use in batch and other process (synthesis or formulation) PROC 7 : Industrial spraying PROC 8 : Transfer of substance or preparation (charging/discharging) from/to vessels/large from/to vessels/large  PROC 8 : Transfer of substance or preparation (charging/discharging) from/to vessels/large  PROC 8 : Transfer of substance or preparation (charging/discharging) from/to vessels/large
substance or preparation into small containers (dedicated filling line, including weighing) PROC 10: Roller application or brushing  IU number PROC 1: Use in closed 26: Use in process, no likelihood of lubricants PROC 2: Use in closed, continuous process with occasional controlled exposure 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 7: Industrial spraying PROC 7: Industrial spraying PROC 8s: Transfer of substance or preparation (charging/discharging) from/to vessels/large products pROC 8s: Transfer of substance or preparation (charging/discharging) from/to vessels/large products pROC 8s: Transfer of substance or preparation (charging/discharging) from/to vessels/large
into small containers (dedicated filling line, including weighing) PROC 10: Roller application or brushing  IU number PROC 1: Use in closed 26: Use in process, no likelihood of lubricants exposure PROC 2: Use in closed, continuous process with occasional controlled exposure 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 7: Industrial suse of (synthesis) where opportunity for exposure arises 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 from/to vessels/large processels/large from/to vessels/large from/t
(dedicated filling line, including weighing) PROC 10 : Roller application or brushing  IU number PROC 1 : Use in closed. 26 : Use in process, no likelihood of lubricants exposure PROC 2 : Use in closed, continuous process with occasional controlled exposure 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 7 : Industrial suse of substance or preparation (charging/discharging) from/to vessels/large PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large PROC 4b : Use in closed batch products p
including weighing) PROC 10 : Roller application or brushing  IU number PROC 1 : Use in closed 26 : Use in process, no likelihood of lubricants  PROC 2 : Use in closed, continuous process with occasional controlled exposure  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 7 : Industrial in products products products or formulation)  PROC 7 : Industrial products products products or formulation becomin and other process (synthesis) where opportunity for exposure arises  PROC 7 : Industrial su use 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
PROC 10 : Roller application or brushing  IU number PROC 1 : Use in closed 26 : Use in process, no likelihood of Industri al use of PROC 2 : Use in closed, continuous process with occasional controlled exposure 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 7 : Industrial products of synthesis) where opportunity for exposure arises PROC 8 : 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 products products products and use of substance or preparation (charging/discharging) from/to vessels/large products p
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IU number PROC 1 : Use in closed 26 : Use in process, no likelihood of lubricants exposure PROC 2 : Use in closed, continuous process with occasional controlled exposure 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 7 : Industrial products opportunity for exposure PROC 7 : Industrial products opportunity for exposure arises PROC 8a : Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at nondedicated facilities PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large products opportunity for exposure and closed (charging/discharging) from/to vessels/large products opportunity for exposure arises opportunity for exposure arises products opportunity for exposure arises opp
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lubricants exposure PROC 2 : Use in closed, continuous process with occasional controlled exposure 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 7 : Industrial use:  Lubricant lubricants  s, greases, release products PC 31 : PO 31 : Polishes Becomin and wax blends articles Opportunity for exposure arises PROC 7 : Industrial use: Industrial use: Lubricant lubricants  s, greases, release products PC 31 : Polishes becomin and wax blends articles Opportunity for exposure arises Industri al use 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 from/to vessels/large from/to vessels/large
PROC 2 : Use in closed, continuous process with occasional controlled in processi exposure  PROC 3 : Use in closed batch process (synthesis or formulation)  PROC 4 : Use in batch and other process (synthesis) where opportunity for exposure arrises  PROC 7 : Industrial spraying  PROC 8a : Transfer of substance or preparation (charging/discharging) from/to vessels/large  PC 24 : Lubricant s, greases, release  PC 31 : POlishes  PO 31 : POlishes  PO 31 : Polishes  Polishes  Polishes  and wax  blends  in products  PC 31 : Polishes  and wax  blends  and wax  blends  in products  products  products  products  poportunity  polishes  and wax  blends  and wax  blends  in products  products  poportunity  polishes  and wax  blends  and wax  blends  in products  poportunity  polishes  and wax  blends  and wax  blends  in products  polishes  and wa
continuous process with occasional controlled exposure  PROC 3 : Use in closed batch process (synthesis or formulation)  PROC 4 : Use in batch and other process (synthesis) where opportunity for exposure  PROC 7 : Industrial arises  PROC 8a : Transfer of substance or preparation (charging/discharging) from/to vessels/large  containers at nondedicated facilities  PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large  from/to vessels/large  containers at nondedicated facilities  PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large  containers at nondedicated facilities  PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large
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PROC 3: Use in closed batch process (synthesis or formulation) , not  POlishes  PROC 4: Use in batch and other process  g part of  (synthesis) where  articles  PROC 7: Industrial spraying  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  from/to vessels/large  products
batch process (synthesis or formulation) , not PROC 4: Use in batch becomin and other process g part of (synthesis) where articles opportunity for exposure arises PROC 7: Industrial spraying substance 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
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arises PROC 7: Industrial spraying 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
PROC 7 : Industrial al use of spraying substanc PROC 8a : Transfer of es in closed (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large
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containers at non- dedicated facilities PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large
dedicated facilities PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large
PROC 8b : Transfer of substance or preparation (charging/discharging) from/to vessels/large
substance or preparation (charging/discharging) from/to vessels/large
(charging/discharging) from/to vessels/large
from/to vessels/large
facilities
PROC 9 : Transfer of
substance or preparation into small containers
(dedicated filling line,
including weighing)
PROC 10 : Roller
application or brushing
PROC 17 : Lubrication
at high energy conditions
and in partly open
process

II number	PROC 1 : Use in closed	FRC 4 ·	N/A	PC 25 :	SU 0 :	N/A	N/A	N/A
	process, no likelihood of		1,7,1	Metal	Other:	1/11	1,11	1/11
	exposure	al use of		working	Industrial			
	PROC 2 : Use in closed,			fluids	use:			
_		r		liulus				
		ng aids			processing			
U	occasional controlled	in			aids			
	exposure	prcesses						
		and						
	· · ·	products						
	or formulation)	, not						
	PROC 5 : Mixing or	becomin						
	blending in batch	g part of						
	processes for	articles						
	formulation of							
	preparations and articles							
	(multistage and/or							
	significant contact)							
	PROC 7 : Industrial							
	spraying							
	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 13 : Treatment of							
	articles by dipping and							
	pouring							
	PROC 17 : Lubrication							
	at high energy conditions							
	and in partly open							
	process							
U number	PROC 1 : Use in closed	ERC 4 :	N/A	PC 0 :	SU 0 :	N/A	N/A	N/A
27 : Use in	process, no likelihood of	Industri		Other:	Other:			
	exposure	al use of		Processin	Industrial			
•	PROC 2 : Use in closed,	processi		g aids	use:			
_	continuous process with	*			processing			

	T	I.		ı	T	ı		
	occasional controlled	in			aids			
	exposure	prcesses						
	PROC 3 : Use in closed	and						
	batch process (synthesis	products						
	or formulation)	, not						
	PROC 8b : Transfer of	becomin						
	substance or preparation	g part of						
	(charging/discharging)	articles						
	from/to vessels/large							
	containers at dedicated							
	facilities							
	PROC 9 : Transfer of							
	substance or preparation							
	into small containers							
	(dedicated filling line,							
	including weighing)							
	PROC 12 : Use of							
	blowing agents in							
	manufacture of foam							
IU number	PROC 1 : Use in closed	ERC 5:	N/A	PC 0 :	SU 0 :	N/A	N/A	N/A
28 : Use in	process, no likelihood of	Industri		Other:	Other:			
binders	exposure	al use		Binders	Industrial			
and release	PROC 2 : Use in closed,	resultin		and	uses			
agents	continuous process with	g in		release				
	occasional controlled	inclusio		agents				
	exposure	n into or						
	_	onto a						
	batch process (synthesis	matrix						
	or formulation)							
	PROC 4 : Use in batch							
	and other process							
	(synthesis) where							
	opportunity for exposure							
	arises							
	PROC 6 : Calendering							
	operations							
	PROC 7 : Industrial							
	spraying							
	PROC 8b : Transfer of							
	substance or preparation							
	(charging/discharging)							
	from/to vessels/large							
	containers at dedicated							
	facilities							
	PROC 10 : Roller							
	application or brushing							
	PROC 14 : Production of							
	preparations or articles							
	by tabletting,							
	compression, extrusion,							
	T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-T-	<u> </u>		I .	<u> </u>	<u> </u>		

	pelletisation							
IU number	PROC 1 : Use in closed	ERC	N/A	PC 13 :	SU 0 :	N/A	N/A	N/A
29 : Use as	process, no likelihood of	8b :		Fuels	Other:			
fuel	exposure	Wide			Industrial			
	PROC 2 : Use in closed,	dispersi			uses			
	continuous process with	ve						
	occasional controlled	indoor						
	exposure	use of						
	PROC 3: Use in closed	reactive						
	batch process (synthesis	substanc						
	or formulation)	es in						
	PROC 4: Use in batch	open						
	and other process	systems						
	(synthesis) where							
	opportunity for exposure							
	arises							
	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 16: Using							
	material as fuel sources,							
	limited exposure to							
	unburned product to be							
	expected							

# Uses by professional workers

Identified Use (IU) name	Process Category (PROC)	Environm ental Release Category (ERC)	Substan ce supplied to that use in form of	Product	Sector of Use (SU)	Subseque nt service life relevant for that use	Article	Exposure scenario reference in the CSR
IU number	PROC 1 : Use in closed	ERC 3:	N/A	PC 32 :	SU 10 :	N/A	N/A	N/A
1:	process, no likelihood of	Formulati		Polymer	Formulatio			
Polymer	exposure	on in		preparatio	n [mixing]			
processing	PROC 2 : Use in closed,	materials		ns and	of			
	continuous process with			compoun	preparation			
	occasional controlled			ds	s and/or re-			

exposure PROC 3 : Use in closed hatch 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 6 : Calendering operations PROC 8a : Transfer of substance or preparation (charging/discharging) from/or vessels/large containers at non-dedicated facilities PROC 8b : Transfer of substance or preparation (charging/discharging) from/or vessels/large containers at dedicated facilities PROC 9 : Transfer of substance or preparation into small containers (dedicated fliling line, including weighing) PROC 13 : Treatment of articles by dipling and pouring PROC 14: Production of preparations or articles by diabletting, compression, extrusion, pelletisation PROC 21: Low energy manipulation of substances bound in materials and/or articles  IU number PROC 1 : Use in closed 2: process, no likelihood of Manufact uraricles  IU number PROC 1 : Use in closed 2: process, no likelihood of PROC 2 : Use in closed, substance or proporations or articles by continuous process with or certain the process of the proce									
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 6: Calendering operations 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 faling line, including weighing) PROC 13: Treatment of articles by dipping and pouring PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 21: Low encryy manipulation of substances bound in materials and/or articles  IU number PROC 1: Use in closed 2: process, no likelihood of articles of PROC 2: Use in closed, Manufactur cure of PROC 2: Use in closed, Manufactur continuous process with substance should in substance of PROC 2: Use in closed, Magnesiu continuous process with substance should in substance of PROC 2: Use in closed, Magnesiu continuous process with substance should in materials and/or articles		exposure				packaging			
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 6: Calendering operations 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 facilities PROC 9: Transfer of substance or preparation into small containers (dedicated facilities PROC 9: Transfer of substances of substance or preparation into small containers (dedicated falling line, including weighing) PROC 13: Treatment of articles by tabletting, compression, extrusion, pelletisation PROC 21: Low energy manipulation of substances bound in materials and/or articles  IU number PROC 1: Use in closed Manufact ure of process, no likelihood of PROC 2: Use in closed, Magnesiu continuous process with substance substances continuous process with substances		PROC 3 : Use in closed				(excluding			
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 6: Calendering operations PROC 8: 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 (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 1: Treatment of articles by dipping and pouring PROC 1: 1: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 2: Low energy manipulation of substances bound in materials and/or articles  IU number PROC 1: Use in closed 2: process, no likelihood of articles process		batch process (synthesis or				alloys)			
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articles  IU number PROC 1 : Use in closed ERC 1 : N/A PC 0 : SU 8 : N/A N/A  2 : process, no likelihood of Manufact ure of Manufactur exposure ure of PROC 2 : Use in closed, Magnesiu continuous process with substance substance substance chemicals		_							
IU number PROC 1 : Use in closed 2 : process, no likelihood of Manufact ure of Manufactur exposure ure of PROC 2 : Use in closed, Magnesiu continuous process with service wit									
2: process, no likelihood of Manufact ure of Manufactur e of bulk, retardants PROC 2: Use in closed, Magnesiu continuous process with substance substance chemicals									
Manufactu exposure ure of PROC 2: Use in closed, Substance Magnesiu continuous process with s Flame e of bulk, retardants large scale chemicals	IU number	PROC 1 : Use in closed	ERC 1:	N/A	PC 0 :	SU 8:	N/A	N/A	N/A
re of PROC 2 : Use in closed, Magnesiu continuous process with s retardants large scale chemicals	2:	process, no likelihood of	Manufact		Other:	Manufactur			
Magnesiu continuous process with s chemicals	Manufactu	exposure	ure of		Flame	e of bulk,			
	re of	PROC 2 : Use in closed,	substance		retardants	large scale			
m occasional controlled (including	Magnesiu	continuous process with	s			chemicals			
	m	occasional controlled				(including			

hydroxide	exposure				petroleum			
	PROC 3 : Use in closed				products)			
	batch process (synthesis or				SU 9:			
	formulation)				Manufactur			
	PROC 4 : Use in batch and				e of fine			
	other process (synthesis)				chemicals			
	where opportunity for							
	exposure arises							
	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 15: Use as							
	laboratory reagent							
U number	PROC 1 : Use in closed	ERC 3:	N/A	PC 32 :	SU 10:	N/A	N/A	N/A
3 :		Formulati			Formulatio	- "		[
	r e	on in		•	n [mixing]			
	r	materials		ns and	of			
		ERC 5:			preparation			
•	<u> </u>	Industrial		ds	s and/or re-			
ina rabber	exposure	use		us	packaging			
	*	resulting			(excluding			
	batch process (synthesis or	_			alloys)			
	1	inclusion			SU 11:			
	PROC 4 : Use in batch and				Manufactur			
					e of rubber			
	1 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	onto a						
	11	matrix ERC 6a :			products			
	1 *				SU 12:			
		Industrial			Manufactur			
	0	use			e of plastics			
	r	resulting			products,			
	of preparations and articles				including			
	1,	manufact			compoundi			
	,	ure of			ng and			
		another			conversion			
	operations	substance						
	PROC 8a: Transfer of	(use of						

	substance or preparation	intermedi						
	(charging/discharging)	ates)						
	from/to vessels/large	ERC 6c:						
	containers at non-	Industrial						
	dedicated facilities	use of						
	PROC 8b : Transfer of	monomer						
	substance or preparation	s for						
	(charging/discharging)	manufact						
	from/to vessels/large	ure of						
	containers at dedicated	thermopla						
	facilities	stics						
	PROC 14 : Production of	ERC 6d:						
	preparations or articles by	Industrial						
	r	use of						
	extrusion, pelletisation	process						
	_	regulators						
		for						
	_	polymersa						
		tion						
		processes						
	•	in						
	manipulation of substances	productio						
	_	n of						
		resins,						
		rubbers,						
	(mechanical) energy work-							
	up of substances bound in	F J						
	materials and/or articles							
IU number	PROC 1 : Use in closed	ERC 2 :	N/A	PC 0 :	SU 10 :	N/A	N/A	N/A
4:	process, no likelihood of	Formulati		Other:	Formulatio			
Formulatio	exposure	on of		Flame	n [mixing]			
		preparatio		retardants	_			
retardants	continuous process with	ns			preparation			
	occasional controlled				s and/or re-			
	exposure				packaging			
	PROC 3 : Use in closed				(excluding			
	batch process (synthesis or				alloys)			
	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							
	substance of 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 15: Use as							
	laboratory reagent							
TT T 1	PROC 14 : Production of	ERC 11a :	NT/A	PC 32 :	SU 17 :	N/A	AC 1 :	N/A
5:		Wide			1	N/A	AC 1: Vehicle	N/A
	, ,			•	General		venicie	
s used in		dispersive indoor		ř ř	manufacturi		S	
1	' <b>1</b>	use of			ng, e.g. machinery,			
transport industry	manipulation of substances			ds	equipment,			
ilidusti y	_	articles		us	vehicles,			
		and			other			
		materials			transport			
		with low			equipment			
		release			equipment			
		rerease						
IU numbe	PROC 14 : Production of	ERC 11a :	N/A	PC 32 :	SU 16:	N/A	AC 2 :	N/A
6:	preparations or articles by	Wide		Polymer	Manufactur		Machin	
Compoun	tabletting, compression,	dispersive		preparatio	e of		ery,	
s used in	extrusion, pelletisation	indoor		ns and	computer,		mechani	
electrical	PROC 21 : Low energy	use of		compoun	electronic		cal	
application	manipulation of substances	long-life		ds	and optical		applianc	
	bound in materials and/or	articles			products,		e,	
	articles	and			electrical		electrica	
		materials			equipment		l/electro	
		with low					nic	
		release					articles	
II I1- ·	DDOC 14 · Daodersties of	EDC 10-	NI/A	PC 32 :	CII 10.	NT / A	AC 4 :	NI/A
		ERC 10a:				N/A		N/A
7:	, ,	Wide		•	Building		Stone,	
s used in	l tabletting, compression,	dispersive outdoor		preparations and			plaster,	
1	extrusion, pelletisation PROC 21 : Low energy	use of		ns and compoun	constructio		cement,	
	manipulation of substances			ds	II WOLK		glass and	
n	-	articles		us			ceramic	
		and					articles	
		materials					AC 7:	
		with low					Metal	
		with iow					pviciai	

		release					articles AC 13 :	
							Plastic	
							articles	
IU number	PROC 1 : Use in closed	ERC 3:	N/A	PC 1:	SU 0 :	N/A	N/A	N/A
8: Use in	process, no likelihood of	Formulati		Adhesives	Other:			
coatings,	exposure	on in		, Sealants	Industrial			
nks,	PROC 2 : Use in closed,	materials		PC 4:	uses			
paints and	continuous process with	ERC 4:		Anti-	SU 5:			
oofing	occasional controlled	Industrial		freeze and	Manufactur			
	exposure	use of		de-icing	e of			
	PROC 3: Use in closed	processin		products	textiles,			
	batch process (synthesis or	g aids in		PC 9a :	leather, fur			
	formulation)	prcesses		Coatings	SU 8:			
	PROC 4: Use in batch and	and		and	Manufactur			
	other process (synthesis)	products,		paints,	e of bulk,			
	where opportunity for	not		thinners,	large scale			
	exposure arises	becoming		paint	chemicals			
	PROC 5 : Mixing or	part of		removes	(including			
	blending in batch	articles		PC 9b :	petroleum			
of preparations an	processes for formulation	ERC 5:		Fillers,	products)			
	of preparations and articles	Industrial		putties,				
	(multistage and/or	use		plasters,				
	significant contact)	resulting		modelling				
	PROC 7 : Industrial	in		clay				
	spraying	inclusion		PC 18:				
	PROC 8a: Transfer of	into or		Ink and				
	substance or preparation	onto a		toners				
	(charging/discharging)	matrix		PC 23:				
	from/to vessels/large	ERC 6a:		Leather				
	containers at non-	Industrial		tanning,				
	dedicated facilities	use		dye,				
	PROC 8b : Transfer of	resulting		finishing,				
	substance or preparation	in		impregnat				
	(charging/discharging)	manufact		ion and				
	from/to vessels/large	ure of		care				
	containers at dedicated	another		products				
	facilities	substance		PC 24 :				
	PROC 10 : Roller	(use of		Lubricant				
	application or brushing	intermedi		s, greases,				
	PROC 13 : Treatment of	ates)		release				
	articles by dipping and	ERC 6c :		products				
	pouring	Industrial		PC 31:				
	PROC 15 : Use as	use of		Polishes				
	laboratory reagent	monomer		and wax				
		s for		blends				
		manufact		PC 32 :				
		ure of		Polymer				
		thermopla		preparatio				
		stics		ns and				

		ı			1			
		ERC 6d:		compoun				
		Industrial		ds				
		use of		PC 34 :				
		process		Textile				
		regulators		dyes,				
		for		finishing				
		polymersa		and				
		tion		impregnat				
		processes		ing				
		in		products;				
		productio		including				
		n of		bleaches				
		resins,		and other				
		rubbers,		processin				
		polymers		g aids				
		F 01 J 111 C13		D 4145				
IU number	PROC 3 : Use in closed	ERC 2 :	N/A	PC 0 :	SU 10 :	N/A	N/A	N/A
	batch process (synthesis or				Formulatio			
	formulation)	on of			n [mixing]			
additive	· · · · · · · · · · · · · · · · · · ·	preparatio		retardants	_			
for fire		ns			preparation			
extinguishi					s and/or re-			
ng					packaging			
compositio					(excluding			
ns					alloys)			
110					anoys)			
IU number	PROC 14 : Production of	ERC 3 :	N/A	PC 32 :	SU 0 :	N/A	N/A	N/A
		Formulati			Other:			
	ŗ ·	on in		•	Recycling			
	extrusion, pelletisation	materials		_	,			
				ns ana				
	_			ns and				
	PROC 21 : Low energy			compoun				
	PROC 21: Low energy manipulation of substances							
	PROC 21 : Low energy manipulation of substances bound in materials and/or			compoun				
	PROC 21: Low energy manipulation of substances			compoun				
	PROC 21 : Low energy manipulation of substances bound in materials and/or articles		N/A	compoun ds	SU 9 :	N/A	N/A	N/A
IU number	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed,	ERC 4 :	N/A	compoun ds PC 20 :		N/A	N/A	N/A
IU number	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with	ERC 4 : Industrial	N/A	compoun ds PC 20 : Products	Manufactur	N/A	N/A	N/A
IU number 11 : Use in chemical	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled	ERC 4 : Industrial use of	N/A	compoun ds PC 20 : Products such as	Manufactur e of fine	N/A	N/A	N/A
IU number 11 : Use in chemical industry	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure	ERC 4 : Industrial use of processin	N/A	PC 20 : Products such as ph-	Manufactur e of fine chemicals	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed	ERC 4: Industrial use of processin g aids in	N/A	PC 20: Products such as ph- regulators	Manufactur e of fine chemicals SU 23:	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza ion of	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  PROC 3: Use in closed batch process (synthesis or	ERC 4: Industrial use of processin g aids in prcesses		PC 20 : Products such as ph- regulators	Manufactur e of fine chemicals SU 23: Electricity,	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  PROC 3: Use in closed batch process (synthesis or formulation)	ERC 4: Industrial use of processin g aids in processes and		PC 20: Products such as ph- regulators , flocculant	Manufactur e of fine chemicals SU 23: Electricity, steam, gas	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and	ERC 4: Industrial use of processin g aids in prcesses and products,		PC 20: Products such as ph- regulators , flocculant s,	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water	N/A	N/A	N/A
(U number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  PROC 3: Use in closed batch process (synthesis or formulation)  PROC 4: Use in batch and other process (synthesis)	ERC 4: Industrial use of processin g aids in prcesses and products, not		PC 20: Products such as ph- regulators , flocculant s, precipitan	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and	N/A	N/A	N/A
(U number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  PROC 3: Use in closed batch process (synthesis or formulation)  PROC 4: Use in batch and other process (synthesis) where opportunity for	ERC 4: Industrial use of processin g aids in prcesses and products, not becoming		PC 20: Products such as ph- regulators , flocculant s, precipitan ts,	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  PROC 3: Use in closed batch process (synthesis or formulation)  PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises	ERC 4: Industrial use of processin g aids in prcesses and products, not becoming part of		PC 20: Products such as ph- regulators , flocculant s, precipitan ts, neutralisat	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  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 7: Industrial	ERC 4: Industrial use of processin g aids in prcesses and products, not becoming part of articles		PC 20: Products such as ph- regulators , flocculant s, precipitan ts,	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  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 7: Industrial	ERC 4: Industrial use of processin g aids in processes and products, not becoming part of articles ERC 8b:		PC 20: Products such as ph- regulators , flocculant s, precipitan ts, neutralisat	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  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 7: Industrial spraying	ERC 4: Industrial use of processin g aids in prcesses and products, not becoming part of articles ERC 8b: Wide		PC 20: Products such as ph- regulators , flocculant s, precipitan ts, neutralisat	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  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 7: Industrial spraying	ERC 4: Industrial use of processin g aids in processes and products, not becoming part of articles ERC 8b: Wide dispersive		PC 20: Products such as ph- regulators , flocculant s, precipitan ts, neutralisat	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A
IU number 11 : Use in chemical industry (neutraliza tion of wastewater s, flue gas)	PROC 21: Low energy manipulation of substances bound in materials and/or articles  PROC 2: Use in closed, continuous process with occasional controlled exposure  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 7: Industrial spraying	ERC 4: Industrial use of processin g aids in prcesses and products, not becoming part of articles ERC 8b: Wide		PC 20: Products such as ph- regulators , flocculant s, precipitan ts, neutralisat	Manufactur e of fine chemicals SU 23: Electricity, steam, gas water supply and sewage treatment	N/A	N/A	N/A

		reactive						
		substance						
		s in open						
		systems						
[U number	PROC 7 : Industrial	ERC 5 :	N/A	PC 26 :	SU 6b :	N/A	AC 8 :	N/A
12 : Use as	spraying	Industrial		Paper and	Manufactur		Paper	
diacidificat	PROC 11 : Non industrial	use		board	e of pulp,		articles	
ion agent	spraying	resulting		dye,	paper and			
for paper		in		finishing	paper			
		inclusion		and	products			
		into or		impregnat				
		onto a		ion				
		matrix		products;				
		ERC 8c :		including				
		Wide		bleaches				
		dispersive		and other				
		indoor		processin				
		use		g aids				
		resulting						
		in						
		inclusion						
		into or						
		onto a						
		matrix						
IU number	PROC 4: Use in batch and	ERC 6b:	N/A	PC 20:	SU 23:	YES	N/A	N/A
13 : Use as	other process (synthesis)	Industrial		Products	Electricity,			
pН	where opportunity for	use of		such as	steam, gas			
regulator	exposure arises	reactive		ph-	water			
(metal		processin		regulators	supply and			
precipitati		g aids		,	sewage			
on waste				flocculant	treatment			
water)				s,				
				precipitan				
				ts,				
				neutralisat				
				ion agents				
IU number	PROC 2 : Use in closed,	ERC 4 :	N/A	PC 20 :	N/A	N/A	AC 8 :	N/A
	· · · · · · · · · · · · · · · · · · ·	Industrial		Products			Paper	
		use of		such as			articles	
	actant in occasional controlled exposure	processin		ph-				
peroxide	•	g aids in		regulators				
bleaching	leaching	prcesses		,				
6		and		flocculant				
		products,		s,				
		not		precipitan				
		becoming		ts,				
		part of		neutralisat				
		articles		ion agents				

III number	PROC 3 : Use in closed	ERC 2 :	N/A	PC 24 :	SU 10:	N/A	N/A	N/A
	batch process (synthesis or				Formulatio	μ <b>ν</b> / Α	1 <b>1</b> / <i>E</i> 1	11/71
	, · ·	on of	l		n [mixing]			
		preparatio	l	release	of			
		ns			preparation			
	processes for formulation	115		products	s and/or re-			
	of preparations and articles				packaging			
	(multistage and/or				(excluding			
	significant contact)				alloys)			
	significant contact)				alloys)			
IU number	PROC 16 : Using material	ERC 4 :	N/A	PC 19 :	SU 23:	N/A	N/A	N/A
	_	Industrial		Intermedi	Electricity,			
	· ·	use of		ate	steam, gas			
		processin		PC 24 :	water			
(gas	r •	g aids in		Lubricant	supply and			
turbines		prcesses	l	s, greases,				
and		and	l	release	treatment			
boilers)		products,		products				
o oners)		not		products				
		becoming						
		part of						
		articles						
		ERC 6b:						
		Industrial						
		use of						
		reactive						
		processin						
		g aids						
		g alus						
IU number	PROC 1 : Use in closed	ERC 1:	N/A	PC 19 :	SU 9 :	N/A	N/A	N/A
17:	process, no likelihood of	Manufact		Intermedi	Manufactur			
Production	f*	ure of		ate	e of fine			
of	_	substance		PC 21 :	chemicals			
magnesiu		s		Laborator				
m		ERC 6b:		v				
compound		Industrial		Chemical				
S		use of		S				
		reactive						
		processin						
		g aids						
		J 40						
IU number	PROC 1 : Use in closed	ERC 2 :	N/A	PC 29 :	SU 10:	N/A	N/A	N/A
18:	process, no likelihood of	Formulati		Pharmace	Formulatio			
Manufactu	exposure	on of		uticals	n [mixing]			
re of		preparatio			of			
pharmaceu		ns			preparation			
tical					s and/or re-			
preparatio					packaging			
ns					(excluding			
					alloys)			

TT T1	DDOC 5 M' '	EDC 5	NT/A	DC 14	GT I O	NT/A	NT/A	NT/A
	PROC 5 : Mixing or	ERC 5:	N/A		SU 0:	N/A	N/A	N/A
		Industrial		Metal	Other:			
	1	use		surface	Manufactur			
for glass	of preparations and articles	resulting		treatment				
industry,	(multistage and/or	in		r .	finishing of			
	,	inclusion		including	glass,			
and stones	PROC 8b : Transfer of	into or		galvanic	ceramics			
	substance or preparation	onto a		and	and stone			
	(charging/discharging)	matrix		electropla	(NACE			
	from/to vessels/large	ERC 12a:		ting	codes			
	containers at dedicated	Industrial		products	C23.1,			
	facilities	processin		PC 15:	C23.3 and			
	PROC 9: Transfer of	g of		Non-	C23.7)			
	substance or preparation	articles		metal-				
	into small containers	with		surface				
	(dedicated filling line,	abrasive		treatment				
	including weighing)	technique		products				
	PROC 10 : Roller	s (low		PC 21 :				
	application or brushing	release)		Laborator				
	PROC 14 : Production of			y				
	preparations or articles by			Chemical				
	tabletting, compression,			S				
	extrusion, pelletisation							
	PROC 22 : Potentially							
	closed processing							
	operations with							
	minerals/metals at elevated							
	temperature. Industrial							
	setting							
	setting							
IU number	PROC 3 : Use in closed	ERC 3:	N/A	PC 32 :	SU 12 :	N/A	N/A	N/A
	batch process (synthesis or				Manufactur			
	formulation)	on in		•	e of plastics			
stabilizer	· · · · · · · · · · · · · · · · · · ·	materials		ns and	products,			
		ERC 5 :		compoun	F			
		Industrial		ds	compoundi			
		use			ng and			
		resulting			conversion			
		in			CONVERSION			
		inclusion						
		into or						
		onto a						
		matrix						
IU number	PROC 5 : Mixing or	ERC 2 :	N/A	PC 12 :	SU 1 :	N/A	N/A	N/A
	blending in batch	Formulati	_ " - •		Agriculture,		[ " - •	- "
	_	on of			forestry and			
of	of preparations and articles				fishery			
	(multistage and/or	ns			11511C1 y			
10111113013	significant contact)	113						
	pigiiiicani contact)							
	I	<u> </u>		<u> </u>	<u> </u>	<u> </u>		

II I mumb om	PROC 3 : Use in closed	ERC 2 :	N/A	PC 19 :	SU 10:	N/A	AC 13 :	NT/A
1			IN/A					IN/A
I	batch process (synthesis or				Formulatio		Plastic	
r	formulation)	on of		ate	n [mixing]		articles	
of	PROC 5 : Mixing or	preparatio			of			
fertilisers	blending in batch	ns EDG 5			preparation			
	<u>+</u>	ERC 5 :			s and/or re-			
	of preparations and articles				packaging			
	(multistage and/or	use			(excluding			
	significant contact)	resulting			alloys)			
	PROC 6 : Calendering	in 			SU 19:			
	operations	inclusion			Building			
	PROC 8a : Transfer of	into or			and			
	substance or preparation	onto a			constructio			
	(charging/discharging)	matrix			n work			
	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 14 : Production of							
	preparations or articles by							
	tabletting, compression,							
	extrusion, pelletisation							
IU number	PROC 1 : Use in closed	ERC 4 :	N/A	PC 3 : Air	SU 0 :	N/A	N/A	N/A
	process, no likelihood of	Industrial	1,71	care	Other:	1,71	1,7,11	
cleaning	F	use of		products	Industrial			
agents	*	processin		PC 4:	use:			
agents	continuous process with	g aids in		Anti-	processing			
	occasional controlled	prcesses		freeze and	_			
	exposure	and		de-icing				
	PROC 4: Use in batch and			products				
		not		PC 9a:				
	where opportunity for	becoming		Coatings				
	exposure arises	part of		and				
	PROC 7 : Industrial	articles		paints,				
	spraying			thinners,				
	PROC 8a : Transfer of			paint				
	substance or preparation			removes				
	(charging/discharging)			PC 9b :				
	from/to vessels/large			Fillers,				
	containers at non-			putties,				
				plasters,				
1	dedicated facilities			prasters.	1	1		ı I
	dedicated facilities PROC 8b : Transfer of			r				
	PROC 8b : Transfer of			modelling				
	PROC 8b : Transfer of substance or preparation			modelling clay				
	PROC 8b : Transfer of			modelling				

	containers at dedicated			s, greases,				
	facilities			release				
	PROC 10 : Roller			products				
	application or brushing			PC 35 :				
	PROC 13 : Treatment of			Washing				
	articles by dipping and			and				
	pouring			cleaning				
	F			products				
				(including				
				solvent				
				based				
				products)				
				products)				
IU number	PROC 3 : Use in closed	ERC 2 :	N/A	PC 19 :	SU 10:	N/A	AC 13 :	N/A
	batch process (synthesis or				Formulatio		Plastic	
		on of			n [mixing]		articles	
	· ·	preparatio		atc	of		articies	
	L	ns			preparation			
		ERC 5 :			s and/or re-			
	of preparations and articles							
	* *				packaging			
	(	use			(excluding			
	_	resulting			alloys)			
		in 			SU 19:			
	1	inclusion			Building			
1		into or			and			
	1 1	onto a			constructio			
		matrix			n work			
	from/to vessels/large							
	containers at non-							
1	dedicated facilities							
	PROC 8b : Transfer of							
	substance or preparation							
	(charging/discharging)							
	from/to vessels/large							
	containers at dedicated							
	facilities							
	PROC 14 : Production of							
	preparations or articles by							
	tabletting, compression,							
	extrusion, pelletisation							
	, position							
IU number	PROC 1 : Use in closed	ERC 4:	N/A	PC 0 :	SU 0 :	N/A	N/A	N/A
25 : Use in	process, no likelihood of	Industrial		Other:	Other:			
1	f .	use of		Oilfield	Industrial			
	1	processin		chemicals				
1 *		g aids in			processing			
I	_	prcesses			aids			
		and						
	1	products,						
1	batch process (synthesis or	<u> </u>						
		becoming						
	i OrmulauOII)	becoming						

	PROC 4: Use in batch and	ř						
	_ ` ` '	articles						
	where opportunity for							
	exposure arises							
	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							
1						N/A	N/A	N/A
	<u>'</u>	Industrial		Adhesives	1			
lubricants	_	use of			Industrial			
	· ·	processin			use:			
	_ <u>*</u>	g aids in		Lubricant	lubricants			
		prcesses	l	s, greases,				
	1	and		release				
		products,	l	products				
	batch process (synthesis or			PC 31:				
	· · · · · · · · · · · · · · · · · · ·	becoming		Polishes				
	PROC 4: Use in batch and	ř		and wax				
	_ ` ` '	articles		blends				
	11	ERC 7:						
	1	Industrial						
	PROC 7 : Industrial	use of						
	1 , 0	substance						
	PROC 8a: Transfer of	s in						
	1 1	closed						
	, , , ,	systems						
	from/to vessels/large							
	containers at non-							
	dedicated facilities							
	PROC 8b : Transfer of							
1	substance or preparation							
	(charging/discharging)							
	from/to vessels/large							
	containers at dedicated							
	facilities							
	PROC 9: Transfer of							
1	substance or preparation							
	into small containers							
	(dedicated filling line,							
	including weighing)							

	PROC 10 : Roller							
	application or brushing							
	PROC 13 : Treatment of							
	articles by dipping and							
	pouring							
	PROC 17 : Lubrication at							
	high energy conditions and							
	in partly open process							
IU number	PROC 1 : Use in closed	ERC 4 :	N/A	PC 25 :	SU 0:	N/A	N/A	N/A
27 : Use in	process, no likelihood of	Industrial		Metal	Other:			
metal	exposure	use of		working	Industrial			
working	PROC 2 : Use in closed,	processin		fluids	use:			
fluids/rolli	continuous process with	g aids in			processing			
ng oils	occasional controlled	prcesses			aids			
	exposure	and						
		products,						
	batch process (synthesis or	not						
	formulation)	becoming						
	PROC 5 : Mixing or	part of						
	blending in batch	articles						
	processes for formulation							
	of preparations and articles							
	(multistage and/or							
	significant contact)							
	PROC 7 : Industrial							
	spraying							
	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 13 : Treatment of							
	articles by dipping and							
	pouring							
	PROC 17 : Lubrication at							
	high energy conditions and							

	in partly open process							
U number	PROC 1 : Use in closed	ERC 5 :	N/A	PC 0 :	SU 0:	N/A	N/A	N/A
28 : Use in	process, no likelihood of	Industrial		Other:	Other:			
	exposure	use		Binders	Industrial			
_		resulting		and	uses			
U	continuous process with	in		release				
	occasional controlled	inclusion		agents				
	exposure	into or						
	PROC 3 : Use in closed	onto a						
	batch process (synthesis or	matrix						
	formulation)							
	PROC 4: Use in batch and							
	other process (synthesis)							
	where opportunity for							
	exposure arises							
	PROC 6 : Calendering							
	operations							
	PROC 7 : Industrial							
	spraying							
	PROC 8b : Transfer of							
	substance or preparation							
	(charging/discharging)							
	from/to vessels/large							
I .	containers at dedicated							
	facilities							
	PROC 10 : Roller							
	application or brushing							
	PROC 14 : Production of							
	preparations or articles by							
	tabletting, compression,							
	extrusion, pelletisation							
U number	PROC 1 : Use in closed	ERC 5 :	N/A	PC 0 :	SU 0:	N/A	N/A	N/A
	process, no likelihood of	Industrial		Other:	Other:			
	exposure	use		Binders	Industrial			
		resulting		and	uses			
		in		release				
_	occasional controlled	inclusion		agents				
	exposure	into or						
	PROC 3 : Use in closed	onto a						
	batch process (synthesis or							
	formulation)							
	PROC 4 : Use in batch and							
	other process (synthesis)							
	where opportunity for							
	exposure arises							
	PROC 6 : Calendering							
	operations							
	PROC 7 : Industrial							
	spraying							

PROC 8b : Transfer of				
substance or preparation				
(charging/discharging)				
from/to vessels/large				
containers at dedicated				
facilities				
PROC 10 : Roller				
application or brushing				
PROC 14 : Production of				
preparations or articles by				
tabletting, compression,				
extrusion, pelletisation				

# Uses by consumers

Identified Use (IU) name	(PROC)	Environmental Release Category (ERC)	to that use in form of	Product Category (PC)  PC 1 : Adhesives,	Sector of Use (SU)	Subseque nt service life relevant for that use	Article Categor y (AC)	Exposure scenario reference in the CSR
1 : Use in coatings, inks, paints and roofing		dispersive outdoor use of long-life articles and materials with low release ERC 11a: Wide dispersive indoor use of long-life articles and materials with low release		Sealants PC 4: Anti-freeze and de-icing products PC 9a: Coatings and paints, thinners, paint removes PC 9b: Fillers, putties, plasters, modelling clay PC 18: Ink and toners PC 23: Leather tanning, dye, finishing, impregnation and care products PC 24: Lubricants, greases, release products PC 31: Polishes and wax blends			Vehicle s AC 7: Metal articles AC 8: Paper articles AC 10: Rubber articles AC 11: Wood articles AC 13: Plastic articles	
IU number 2 : Use in	N/A	ERC 8a : Wide dispersive indoor		PC 3 : Air care products	N/A	YES	AC 0 : Other	N/A

1 .			DC 4 4 4 6			C1 :	
cleaning	use of processing		PC 4 : Anti-freeze			Cleanin	
agents	aids in open		and de-icing			g agents	
	systems		products				
	ERC 8d : Wide		PC 9a : Coatings				
	dispersive		and paints,				
	outdoor use of		thinners, paint				
	processing aids		removes				
	in open systems		PC 9b : Fillers,				
			putties, plasters,				
			modelling clay				
			PC 24 :				
			Lubricants,				
			greases, release				
			products				
			PC 35 : Washing				
			and cleaning				
			products				
			(including solvent				
			based products)				
IU number N/A	ERC 8a : Wide N	/A	PC 1 : Adhesives,	N/A	N/A	AC 0 :	N/A
3 : Use in	dispersive indoor		Sealants	- 1/		Other	- 1/ 4 4
lubricants	use of processing		PC 24 :			Lubrica	
Tabile and	aids in open		Lubricants,			nts	
	systems		greases, release				
	ERC 8d : Wide		products				
	dispersive		PC 31 : Polishes				
	outdoor use of		and wax blends				
	processing aids						
	in open systems						
	ERC 9a : Wide						
	dispersive indoor						
	use of substances						
	in closed systems						
	ERC 9b : Wide						
	dispersive						
	outdoor use of						
	substances in						
	closed systems						
IU number N/A	ERC 8a : Wide N	/A	PC 1 : Adhesives,	N/A	N/A	AC 0 :	N/A
4: Use in	dispersive indoor		Sealants			Other	
propellants	use of processing		PC 3 : Air care			Propella	
	aids in open		products			nts	
	systems		PC 4 : Anti-freeze				
	ERC 8d : Wide		and de-icing				
	dispersive		products				
	outdoor use of		PC 9a : Coatings				
	processing aids		and paints,				
	in open systems		thinners, paint				
			removes				

			PC 9b : Fillers,				
			putties, plasters,				
			modelling clay				
			PC 24 :				
			Lubricants,				
			greases, release				
			products				
			PC 31 : Polishes				
			and wax blends				
			PC 35 : Washing				
			and cleaning				
			products				
			(including solvent				
			based products)				
IU number N/A	ERC 8b : Wide	N/A	PC 13 : Fuels	N/A	YES	AC 0 :	N/A
5 : Use as	dispersive indoor	. a		_ "		Other	_ ''
fuel	use of reactive					Fuels	
ruci	substances in					i ucis	
	open systems						
	ERC 8e : Wide						
	dispersive outdoor use of						
	reactive						
	substances in						
	open systems						
IU number N/A	ERC 9a : Wide	N/A	PC 16 : Heat	N/A	N/A	AC 0 :	N/A
6: Use in	dispersive indoor	. ,,	transfer fluids		- 1/1 -	Other	
functional	use of substances		PC 17 : Hydraulic			Functio	
fluids	in closed systems		fluids			nal	
Iraids	ERC 9b : Wide		lititus			fluids	
	dispersive					liuius	
	outdoor use of						
	substances in						
	closed systems						
	ciosed systems						
IU number N/A	ERC 8d : Wide	N/A	PC 4 : Anti-freeze	N/A	N/A	AC 0 :	N/A
7 : Use in	dispersive		and de-icing			Other	
de-icing	outdoor use of		products			De-	
and anti-	processing aids					icing	
icing	in open systems					and	
application						anti-	
S						icing	
						products	
IU number N/A		N/A	PC 28 : Perfumes,	N/A	N/A	AC 0 :	N/A
8 : Use in	dispersive indoor		fragrances			Other	
personal	use of processing		PC 39 : Cosmetics,			Personal	
care	aids in open		personal care			care	
products,	systems		products			products	
1	ERC 8d : Wide						

		T		ı	1	1	1	1
perfumes		dispersive					perfume	
		outdoor use of					s	
		processing aids						
		in open systems						
IU number	NT / A	ERC 8b : Wide	N/A	PC 36 : Water	N/A	N/A	AC 0 :	N/A
9 : Use in	IN/A			softeners	IN/A	IN/A	Other	IN/A
		dispersive indoor use of reactive		PC 37 : Water			Water	
water treatment		substances in		treatment			treatme	
chemicals		open systems		chemicals			nt	
Chemicais		ERC 8e : Wide		chemicais			chemica	
		dispersive					ls	
		outdoor use of						
		reactive						
		substances in						
		open systems						
		open systems						
IU number	N/A	ERC 8a : Wide	N/A	PC 36 : Water	N/A	YES	N/A	N/A
10 : De-		dispersive indoor		softeners				
acidificatio		use of processing		PC 37: Water				
n/neutralis		aids in open		treatment				
ation agent		systems		chemicals				
		ERC 8e : Wide						
		dispersive						
		outdoor use of						
		reactive						
		substances in						
		open systems						
IU number	N/A	ERC 2 :	N/A	N/A	N/A	YES	N/A	N/A
11 : Use in		Formulation of	[ "					
agrochemi		preparations						
cals/slurry		ERC 8a : Wide						
and		dispersive indoor						
fertiliser		use of processing						
products		aids in open						
		systems						
		ERC 8d : Wide						
		dispersive						
		outdoor use of						
		processing aids						
		in open systems						
IU number	NI / A	ERC 8a : Wide	N/A	PC 1 : Adhesives,	N/A	NO	N/A	N/A
12 : Use as	μ <b>ν</b> / <b>/Λ</b>	dispersive indoor		Sealants	1 N/ FA	110	μ <b>ν/ Α</b>	1 1/ A
water		use of processing		PC 4 : Anti-freeze				
treatment		aids in open		and de-icing				
chemical		systems		products				
Chemical		ERC 8d : Wide		PC 24 :				
		dispersive		Lubricants,				
		outdoor use of		greases, release				
		processing aids		, , , , , , , , , , , , , , , , , , , ,				
	<u> </u>	Fractioning and	L	I		<u> </u>	l	

			I	1 ,	1			
		in open systems		products				
		ERC 9a : Wide						
		dispersive indoor	1					
		use of substances	1					
		in closed systems						
IU number N	[/ <b>A</b>	ERC 8a : Wide	N/A	PC 0 : Other: Fire	N/A	YES	AC 0 :	N/A
13 : Use as		dispersive indoor		extinguishers and			Other	
flame		use of processing	l	propellants			Fire	
retardant		aids in open		PC 1 : Adhesives,			extingui	
		systems		Sealants			shers	
		ERC 8b : Wide		PC 3 : Air care			AC 1 :	
		dispersive indoor		products			Vehicle	
		use of reactive		PC 4 : Anti-freeze			s	
		substances in		and de-icing				
		open systems		products				
		ERC 8c : Wide		PC 9a : Coatings				
		dispersive indoor		and paints,				
		use resulting in		thinners, paint				
		inclusion into or		removes				
		onto a matrix		PC 9b : Fillers,				
		ERC 8d : Wide		putties, plasters,				
		dispersive		modelling clay				
		outdoor use of		PC 16 : Heat				
		processing aids		transfer fluids				
		in open systems		PC 17 : Hydraulic				
		ERC 8f : Wide		fluids				
		dispersive		PC 18 : Ink and				
		outdoor use						
		resulting in		toners PC 23 : Leather				
		inclusion into or						
				tanning, dye,				
		onto a matrix		finishing,				
		ERC 9a : Wide		impregnation and				
		dispersive indoor	l	care products PC 24:				
		use of substances						
		in closed systems		Lubricants,				
		ERC 9b : Wide		greases, release				
		dispersive outdoor use of		products PC 26 : Paper and				
		substances in		_				
		closed systems		board dye,				
		ERC 10a : Wide		finishing and				
		dispersive		impregnation products;				
		outdoor use of		r				
				including bleaches and other				
		long-life articles and materials						
				processing aids				
		with low release		PC 28 : Perfumes,				
		ERC 11a : Wide		fragrances				
		dispersive indoor		PC 31 : Polishes				
		use of long-life		and wax blends				
		articles and		PC 32 : Polymer				

		materials with		preparations and				
		low release		compounds				
				PC 34 : Textile				
				dyes, finishing and				
				impregnating				
				products;				
				including bleaches				
				and other				
				processing aids				
				PC 35 : Washing				
				and cleaning				
				products				
				(including solvent				
				based products)				
				PC 39 : Cosmetics,				
				personal care				
				products				
				products				
IU number	N/A	ERC 8a : Wide	N/A	PC 16 : Heat	N/A	YES	N/A	N/A
14 : Use in		dispersive indoor		transfer fluids				
hydraulic		use of processing		PC 17 : Hydraulic				
fluids		aids in open		fluids				
		systems						
		ERC 8d : Wide						
		dispersive						
		outdoor use of						
		processing aids						
		in open systems						
		ERC 9a : Wide						
		dispersive indoor						
		use of substances						
		in closed systems						
IU number	N/A	ERC 10a : Wide	N/A	PC 1 : Adhesives,	N/A	NO	AC 1 :	N/A
15 : Use in		dispersive		Sealants			Vehicle	
coating,		outdoor use of		PC 4 : Anti-freeze			s	
inks,		long-life articles		and de-icing			AC 7 :	
paints and		and materials		products			Metal	
roofing		with low release		PC 9a : Coatings			articles	
		ERC 11a: Wide		and paints,			AC 8 :	
		dispersive indoor		thinners, paint			Paper	
		use of long-life		removes			articles	
		articles and		PC 9b : Fillers,			AC 10:	
		materials with		putties, plasters,			Rubber	
		low release		modelling clay			articles	
				PC 18: Ink and			AC 11 :	
				toners			Wood	
				PC 23 : Leather			articles	
				tanning, dye,			AC 13 :	
				finishing,			Plastic	
				impregnation and			articles	

		1 .	I		
		care products			
		PC 24:			
		Lubricants,			
		greases, release			
		products			
		PC 31 : Polishes			
		and wax blends			
IU number N/A	ERC 8a : Wide N/A	PC 1 : Adhesives,	N/A	YES	AC 0: N/A
16 : Use in	dispersive indoor	Sealants	1 1/2 1	I LS	Other
cleaning	use of processing	PC 24 :			lubrican
_	aids in open	Lubricants,			
agents	-	greases, release			ts
	systems ERC 8d : Wide	_			
		products			
	dispersive	PC 31 : Polishes			
	outdoor use of	and wax blends			
	processing aids				
	in open systems				
	ERC 9a : Wide				
	dispersive indoor				
	use of substances				
	in closed systems				
	ERC 9b : Wide				
	dispersive				
	outdoor use of				
	substances in				
	closed systems				
IU number N/A	ERC 8a : Wide N/A	PC 28 : Perfumes,	N/A	YES	AC 0: N/A
17 : Use in	dispersive indoor	fragrances	11/11	I LS	Other Other
	use of processing	PC 39 : Cosmetics,			
personal		personal care			personal
care	aids in open	ř			care
products	systems	products			products
	ERC 8d : Wide				, ,
	dispersive				perfume
	outdoor use of				S
	processing aids				
	in open systems				
IU number N/A	ERC 9a : Wide N/A	PC 20 : Products	N/A	YES	AC 0 : N/A
18: Use of	dispersive indoor	such as ph-			Other
function	use of substances	regulators,			device
modified	in closed systems	flocculants,			for
packaging		precipitants,			biologic
r		neutralisation			al
		agents			measure
		2501115			ment

1.3 Details of the supplier of the safety data sheet

Company name: SINWON CHEMICAL CO.,LTD.

Address: 1Ra-106, Shihwa Industrial Complex, #1236-5, Jungwang-Dong, Shihung-

City, Kyonggi-Do, Korea

Contact Telephone: +82-31--432-6688

Fax: - Email Address: -

Emergency Telephone: +82-31--432-6688

# 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance

#### **Classification:**

Magnesium hydroxide is not classified according to Regulation (EU) 453/2010 (REACH), Annex II.

### 2.2 Label elements

Labelling: Not classified
Signal word: Not classified
Hazard statement: Not classified

- Additional precautionary statements: Not classified.

3. COMPOSITION / INFORMATION ON INGREDIENTS							
Component	Conc <sup>n</sup> / %	CAS#	EC#	Classification			
Magnesium hydroxide	≥ 96	1309-42-8	215-170-3	See section 2			

## 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

After skin contact: - In case of contact with substance, immediately flush eyes with running water at

least 20 minutes.

- Get immediate medical advice/attention.

After eye contact: - In case of contact with substance, immediately flush skin or eyes with running

water for at least 20 minutes.

Remove and isolate contaminated clothing and shoes.Wash contaminated clothing and shoes before reuse.

Get immediate medical advice/attention.Specific medical treatment is urgent.

- Move victim to fresh air.

Give artificial respiration if victim is not breathing.Administer oxygen if breathing is difficult.Do not let him/her eat anything, if unconscious.

- Get immediate medical advice/attention.

### 4.2 Most important symptoms and effects

• Acute effects: None known.

After ingestion:

After inhalation:

• Delayed effects: No delayed effects are anticipated if first aid treatment is applied and is effective.

#### 4.3 Indication of immediate medical attention and notes for physician

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

#### 5. FIRE-FIGHTING MEASURES

#### 5.1 Extinguishing media

Extinguishing media:

- o Suitable extinguishing media:
  - Small Fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, CO<sub>2</sub>
  - Large Fire: water spray/fog, regular foam
- o Unsuitable extinguishing media: High pressure water streams

## 5.2 Special hazards arising from the substance or mixture

- May be ignited by heat, sparks or flames.
- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Fire will produce irritating and/or toxic gases.
- If inhaled, may be harmful.
- Some liquids produce vapors that may cause dizziness or suffocation.

#### 5.3 Advice for firefighters

- Move containers from fire area if you can do it without risk.
- Runoff from fire control may cause pollution.
- Contact with substance may cause severe burns to skin and eyes.
- Dike fire-control water for later disposal; do not scatter the material.
- Fire involving Tanks; Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks; Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Fire involving Tanks; Always stay away from tanks engulfed in fire.

# 6. ACCIDENTAL RELEASE MEASURES

## 6.1 Personal precautions, protective equipment and emergency procedures

- Eliminate all ignition sources.
- Stop leak if you can do it without risk.
- Please note that materials and conditions to avoid .
- Ventilate the area.
- Do not touch or walk through spilled material.
- Prevent dust cloud.

## **6.2 Environmental precautions**

- Prevent entry into waterways, sewers, basements or confined areas.

#### 6.3 Methods and material for containment and cleaning up

- Small Spill; Flush area with flooding quantities of water.
- Small Spill; Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
- Large Spill; Dike far ahead of liquid spill for later disposal.
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area
- Powder Spill; Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.

# 7. HANDLING AND STORAGE

#### 7.1 Precautions for safe handling

- Please note that materials and conditions to avoid.
- Wash thoroughly after handling.
- Please work with reference to engineering controls and personal protective equipment.
- Be careful to high temperature.

## 7.2 Conditions for safe storage, including any incompatibilities

- Store in a closed container.
- Store in cool and dry place.
- Please note that materials and conditions to avoid.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

# 8.1 Control parameters

# **Exposure limits / standards:**

Specific exposure limits have not been established or are not applicable unless listed below.

o Regulation in Korean: Not available

o US (NIOSH/OSHA/AGGIH): Not available

o EU Regulation: Not available

Other: Not available

o Biological Exposure Index: Not available

#### Occupational exposure controls:

Exposure		DNELs, DMELs, PNECs										
route of relevance	Industrial			Professional				Consumer				
	Long	Long	Short	Short	Long	Long	Short	Short	Long	Long	Short	Short
	term,	term,	term,	term,	term,	term,	term,	term,	term,	term,	term,	term,
	local	systemic	local	systemic	local	systemic	local	systemi	local	systemic	local	systemic
	effects	effects	effects	effect	effects	effects	effects	c effects	effects	effects	effects	effects
Human: oral	-	-	-	-	-	-	-	-	-	10 mg/kg bw/day	-	10 mg/kg bw/day
Human: inhalation	-	117.54 mg/m³	-	117.54 mg/m³	-	117.54 mg/m³	-	117.54 mg/m³	-	34.78 mg/m³	-	34.78 mg/m³
Human: dermal	-	16.67 mg/kg bw/day	-	16.67 mg/kg bw/day	-	16.67 mg/kg bw/day	-	16.67 mg/kg bw/day	-	10 mg/kg bw/day	-	10 mg/kg bw/day
Environment: water		0.1 mg/L (freshwater), 0.01 mg/L (marine water), 1 mg/L (intermittent releases)										
Environment: air		-										
Environment: soil		0.01912 mg/kg soil dw										
Environment: sediment	0	0.08188 mg/kg sediment dw (freshwater), 0.008188 mg/kg sediment dw (marine water)										

Environment: STP	1 mg/L
Environment: oral	66.67 mg/kg food

#### 8.2 Exposure controls

## **Appropriate engineering controls:**

- Facilities for storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

#### <u>Individual protection measures, such as personal protective equipment:</u>

#### **Respiratory protection:**

- Breathing protection if dusts are formed. Particle filter with low efficiency for solid particles (e.g. EN 143 or 149, Type P1 or FFP1).
- Respiratory protection: Wear NIOSH/MESA approved full or half face piece (with goggles) respiratory protective equipment.

#### **Eye protection:**

- Wear breathable safety goggles to protect from particulate material causing eye irritation or other disorder.
- An eye wash unit and safety shower station should be available nearby work place.

#### **Hand protection:**

- Wear appropriate protective gloves by considering physical and chemical properties of chemicals.

## **Body protection:**

- Wear appropriate protective clothing by considering physical and chemical properties of chemicals.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

## 9.1 Information on basic physical and chemical properties

Appearance

**Description :** Solid (powder)

Color: White
Odor: Odourless
Odor threshold: Not available

**pH:**  $9.5 \sim 10.5$  (aqueous slurry)

Melting point/freezing point :Not availableInitial boiling point and boiling range :Not availableFlash point :Not availableEvaporation rate :Not available

Flammability (solid, gas): Non flammable (EU Method A.10, GLP)

**Upper/lower flammability or explosive limits :**Not available **Vapor pressure :**Not available

**Solubility (ies):** 1.78 mg/L (20 °C)(OECD TG 105, GLP)

Vapor density: Not available

Specific gravity: 2.41 g/m³ (20 °C)(OECD TG 109,

GLP)(density)

Partition coefficient: n-octanol/water: Not available

**Auto ignition temperature :** Not self-ignitable(in 20 °C  $\sim$ 400 °C) **Decomposition temperature :** > 320 °C (OECD TG 102, GLP)

Viscosity: Not available

**Molecular weight:** 58.32

# 10. STABILITY AND REACTIVITY

# 10.1 Reactivity/Chemical stability/Possibility of hazardous reactions

- Containers may explode when heated.
- Some of these materials may burn, but none ignite readily.
- Fire may produce irritating and/or toxic gases.
- Non-combustible, substance itself does not burn but may decompose upon heating, then produce corrosive and/or toxic fumes..

## 10.2 Conditions to avoid

- Ignition sources (heat, sparks or flames)

## 10.3 Incompatible materials

- Combustibles, reducing agents

## 10.4 Hazardous decomposition products

- Corrosive and/or toxic fume
- Irritating, corrosive and/or toxic gases

# 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects	
(a) Acute toxicity;	Conclusion / Remarks
By oral route	Rat, LD50 > 2000 mg/kg (female)(OECD TG 423,GLP)
By dermal route	Not available
By inhalation route	Rat, LC50 > 2.1 mg/L 4 hr (male/female)(OECD TG 403, GLP)
(b) Skin corrosion/irritation;	Based on results of in vitro test with human skin model, it is concluded that magnesium hydroxide is non-irritant. (GLP)
(c) Serious eye damage/irritation;	In eye irritation test with rabbits, irritations were not observed.(OECD TG 405, GLP)
(d) Respiratory or skin sensitization;	In Guinea pig maximisation test, magnesium chloride hexahydrate caused no reactions identified as sensitisating at the tested concentration.(OECD Guideline 406, GLP)
(e) Germ cell mutagenicity;	Negative reactions were observed in vitro (mammalian chromosome aberration test (OECD TG 473, GLP), bacterial reverse mutation assay (OECD TG 471, GLP), mammalian cell gene mutation assay (OECD TG 476, GLP)).
(f) Carcinogenicity;	KOREA-ISHL, IARC, NTP, OSHA, ACGIH, EU Regulation 1272/2008: Not listed
(g) Reproductive toxicity;	In reproduction/developmental toxicity test with rats, no reproduction/developmental toxicity were observed at any dose level.(OECD TG 422, GLP)
(h) STOT-single exposure;	In acute inhalation toxicity study with rats, no clinical signs were noted during exposure. After exposure, ptosis and/or piloerection were noted in two males and one female on day 1 only. (OECD TG 403, GLP)
(i) STOT-repeated exposure;	No toxicologically relevant changes were noted in repeated dose oral toxicity study with rats. NOAEL>=1000 mg/kg bw/day (OECD TG 422, GLP)
(j) Aspiration hazard.	Not available

## 12. ECOLOGICAL INFORMATION

	Conclusion / Remarks
12.1 Toxicity	
Acute toxicity	Fish: 96hr-LC50 ( <i>Pimephales promelas</i> ) = 511.31 mg/L Invertebrates: 48h- LC50 ( <i>Daphnia magna</i> ) = 284.76 mg/L Algae: 72hr-EC50 (other) > 100 mg/L (OECD TG 201, GLP)
Chronic toxicity	Not available
12.2 Persistence and degradability	Not available
12.3 Bioaccumulative potential	Not available
12.4 Mobility in soil	Not available
12.5 Results of PBT and vPvB assessment	Not available
12.6 Other adverse effects	Not available

## 13. DISPOSAL CONSIDERATIONS

### Waste from residues

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## **Container**

Consider the required attentions in accordance with waste treatment management regulation.

## 14. TRANSPORT INFORMATION

UN #: Not classified with a dangerous goods

Class: Not applicable
Proper shipping name: Not applicable
Packing group: Not applicable
Marine pollutant Not applicable
Other information: Not applicable

## 15. REGULATORY INFORMATION

## 15.1 Safety, health and environmental regulation/legislation specific for the substance or mixture

## **EU Regulatory Information**

- EU classification
  - Annex I of Directive 67/548/EEC:
    - Classification: Not classified
    - Risk phrases: Not applicable

- Safety phrases: Not applicable

- EU CLP 1272/2008:
  - Classification: Not classified
  - Hazard statement codes: Not applicable
  - Precautionary statement codes: Not applicable

• EU SVHC list: Not regulated

EU Authorisation List: Not regulated
 EU Restriction list: Not regulated

## **Foreign Regulatory Information**

#### o External information

- U.S.A management information (OSHA Regulation) : Not regulated
- U.S.A management information (CERCLA Regulation): Not regulated
- U.S.A management information (EPCRA 302 Regulation): Not regulated
- U.S.A management information (EPCRA 304 Regulation): Not regulated
- U.S.A management information (EPCRA 313 Regulation): Not regulated
- Substance of Roterdame Protocol: Not regulated
- Substance of Stockholme Protocol: Not regulated
- Substance of Montreal Protocol: Not regulated

#### **Foreign Inventory Status**

- Korea management information : Existing Chemicals Inventory (KECI/KECL): Existing Chemical Substance: (KE-04487)
- U.S.A management information : Section 8(b) Inventory (TSCA): present
- Japan management information: Existing and New Chemical Substances (ENCS): (1)-386
- China management information: Inventory of Existing Chemical Substances (IECSC):present
- Canada management information : Domestic Substances List (DSL): present
- Australia management information : Inventory of Chemical Substances (AICS): present
- New Zealand management : Inventory of Chemicals (NZIoC): present
- Philippines management information : Inventory of Chemicals and Chemical Substances (PICCS): present

**15.2 Chemical safety assessment :** In accordance with REACH Article 14, a Chemical Safety Assessment has been carried out for this substance.

# 16. OTHER INFORMATION

#### 16.1 Indication of changes:

Version: -

Revision date: -

#### 16.2 Key literature reference and sources for data:

- U.S. National library of Medicine (NLM) Hazardous Substances Data Bank (HSDB); http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB.htm
- REACH information on registered substances;
- http://apps.echa.europa.eu/registered/registered-sub.aspx
- Korea Occupational Health & Safety Agency; http://www.kosha.net

- National Chemicals Information System; http://ncis.nier.go.kr/ncis/
- National Emergency Management Agency-Korea dangerous material inventory management system; http://www.nema.go.kr/hazmat/main/main.jsp
- Waste Control Act enforcement regulation attached [1]

Product safety data sheet for Magnesium Hydroxide prepared in accordance with Regulation (EU) 453/2010 (REACH), Annex II.

This safety data sheet (SDS) is based on the legal provisions of the REACH Regulation, as amended. Its contents are intended as a guide to the appropriate precautionary handling of the material. It is the responsibility of recipients of this SDS to ensure that the information contained therein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. Information and instructions provided in this SDS are based on the current state of scientific and technical knowledge at the date of issue indicated. It should not be construed as any guarantee of technical performance, suitability for particular applications, and does not establish a legally valid contractual relationship. This version of the SDS supersedes all previous versions.