Annex 1 to Safety Data Sheet

Exposure Scenario (ES) Magnesium Hydroxide

1.1. Manufacturing

Manufacturing Process
Manufacturing facilities are located outside the EU.

General information:
Magnesium hydroxide is manufactured by liquid phase method with the separation and drying of the product obtained through a unique production cycle.

1.2 Identified Uses

No.	Short Title of the Exposure Scenario	SU	PROC	ERC	spERC	PC	AC
Manufacturing							
1	Manufacturing of magnesium hydroxide		1, 2, 3, 4,8a, 8b,9,15	1			
Composition of the Mixture							
2	Polymer processing		1, 2, 3, 8b, 9, 4, 5, 6, 8a, 13, 14, 21,	3		32	
3	Formulation of flame retardants		1,2,3,4,5,8a, 8b 9, 15	2		0	
4	Flame retardant for fire extinguishing compositions		3	2		0	
5	Plastics processing		14, 21	3		32	
6	Manufacture of corrosion inhibitors		3, 5	2		24	
7	Manufacture of pharmaceuticals		1	2		29	
8	Use in PVC stabilizers		3	3		32	
9	Use in fertilizer manufacturing		5	2		12	
Industrial Uses							
10	Use as PVC stabilizer	12	3	5		32	
11	Industrial production of rubber and plastics	10, 11, 12,	1, 2, 3, 4, 5, 6, 8a, 8b, 14, 19, 15, 21, 24	5, 6a, 6c, 6d			
12	Use in coatings, paints and roof coatings	5, 8, 0	1, 2, 3, 4, 5, 7, 8a, 8b, 10, 13, 15	4, 5, 6a, 6d, 6c		9a, 1, 4, 18, 23, 24, 31, 9b, 34, 32	

13	Use in the chemical industry (waste water and flue gas neutralization)	9, 23	2, 3, 4, 7	4		20	
14	Use as acid neutralizing agent for paper	6b	7, 11	5		26	
15	Use as pH control agent (metal-loaded sewage sludge)	23	4	6b		20	
16	Use as a paper bleaching agent	6b	2	4		20	
17	Use as corrosion inhibitor (gas turbines and boilers)	23	16	4, 6b		19, 24	
18	Use as abrasive grain in glass, ceramics and stone industries	0	5, 8b, 9, 10, 14, 22	5		14, 15, 21	
19	Use in the construction industry	10, 19	3, 5, 8a, 8b, 6, 14	5		19	
20	Use in cleaning agents	0	1, 2, 4, 7, 8a, 8b, 10, 13	4		3, 4, 9a, 9b, 24, 35	
21	Use in oil-field operations	0	1, 2, 3, 4, 8b, 9, 10	4		0	
22	Use in lubricants	0	1, 2, 3, 4, 7, 8a, 8b, 9, 10, 13, 17	4, 7		1, 24, 31	
23	Use in metal-working fluids/ rolling oils	0	1, 2, 3, 5, 7, 8a, 8b, 10, 9, 13, 17	5		25	
24	Use in foaming agents	0	1, 2, 3, 8b, 9, 12	4		0	
25	Use in bonding and release agents	0	1, 2, 3, 4, 6, 8b, 10, 14, 7	5		0	
26	Use in functional fluids	0	1, 2, 3, 4, 8a, 8b, 9	7		16, 17	
27	Laboratory use	0	10, 15	4		21	
28	Use in water treatment chemicals	0	1, 2, 3, 4, 8a, 8b, 13	4		36, 37	

29	Use in anti-icing and deicing agents		2, 8b	7		4	
Professional Use							
30	Compounds used in the transport industry	17	14, 21			32	
31	Compounds used in the electric industry	16	14, 21			32	
32	Compounds used in the construction	19	14, 21			32	
33	Use in coatings, inks, paints and roofing materials	12, 8	1, 2, 3, 4, 5, 8a, 8b, 10, 11, 13, 15, 19, 21, 24	8a, 8c, 8d, 8f		9a, 1, 4, 9a, 18, 23, 24, 31, 32, 34, 9b	
34	Horticultural use (agrochemicals)	10	4, 8a, 8b, 11, 13	8a, 8d		12, 27	
35	Use in cleaning agents	8, 20	1, 2, 3, 4, 8a, 8b, 10, 11, 13	8a, 8d		3, 4, 9a, 9b, 24, 35	
36	Use in oil-field operations	2a, 2b	3, 4, 8a, 8b, 10, 9	8d		0	
37	Use in lubricants	16	1, 2, 3, 4, 8a,8b, 9, 13, 17, 20	8a, 8d, 9a, 9b		31	
38	Use in metal-working fluids/ rolling oils	10, 8	1, 2, 3, 5, 8a, 8b, 10, 11, 13, 17	8a		25	
39	Use in fuels	16, 18	11	8a, 8d		1, 3, 4, 9a, 9b, 24, 31, 35	
40	Use in bonding and release agents	19	1, 2, 3, 4, 6, 8a, 8b, 10,11, 14	8c		0	
41	Use as fuels	17	1, 2, 3, 4, 16, 8a, 8b	8b, 8e		13	
42	Use in functional fluids	17	1, 2, 3, 8a, 9, 20	9a, 9b		16, 7	
43	Use in road works and construction	17	5, 7, 8b, 8a, 9, 10, 11, 13	8f		0	
44	Laboratory use	24	10, 15	8a		21	
45	Use in explosives	0	3, 5, 8a, 8b	8d		11	

46	Use in water treatment chemicals	6a, 6b, 20	1, 2, 3, 4, 8a, 8b, 13	8a, 8d		36, 37	
47	Polymer processing	12	1, 2, 8a, 8b, 14, 21	8a, 8c, 8d, 8f		32	
Consumer Use							
48	Use in cleaning agents			8a, 8d		3, 4, 9a, 9b, 24, 35	
49	Use in coatings, inks, paints and roofing materials					1, 4, 9a, 18, 23, 24, 31, 9b	
50	Use in lubricants			8a, 8d, 9a, 9b		1, 24,31	
51	Use in fuels			8a, 8d		1, 3, 4, 9a, 9b, 24, 31, 35	
52	Use as fuels			8b, 8e		13	
53	Use in functional fluids			9a, 9b		16,17	
54	Use in anti-icing and deicing agents			8d		4	
55	Use in personal hygiene and perfumery products			8a, 8d		28, 39	
56	Use in water treatment chemicals			8b, 8e		36, 37	
57	Compounds used in the transport industry		14, 21	11a			1
58	Compounds used in the electric industry		14, 21	11a			2
59	Compounds used in the construction		14, 21	10a			13, 7, 4
60	Use as acid neutralizing agent for paper						8
61	Use as bleaching agent in peroxide bleaching of paper pulp						8
62	Use in the construction industry		14				13

63	Use in coatings, inks, paints and roofing materials			10a, 11a			7, 11, 13, 1, 8, 10

Use Descriptors

SU	**End-Use Sector**
SU 0	Other: manufacture and finishing of glass, ceramics and stone (NACE codes C23.1, C23.3 and C23.7)
SU 5	Manufacture of textiles, leather and fur
SU 8	Manufacture of bulk, large scale chemicals (including petroleum products).
SU 9	Manufacture of fine chemicals
SU 10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU 11	Manufacture of rubber products
SU 12	Manufacture of plastics products, including compounding and conversion.
SU 16	Manufacture of computer, electronic and optical products, electrical equipment.
SU 17	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment
SU 18	Manufacture of furniture
SU 19	Building and construction work
SU 20	Health services
SU 23	Electricity, steam, gas, water supply and sewage treatment
SU 24	Scientific research and development
SU 2a	Mining (without offshore industries)
SU 2b	Offshore industries
SU 6a	Manufacture of wood and wood products
SU 6b	Manufacture of pulp, paper and paper products

PROC	**Process Category**
PROC 1	Use in closed processes, no likelihood of exposure.
PROC 2	Use in closed continuous processes with occasional 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 blending in batch processes for formulation of preparations and articles (multistage and/or significant contact).
PROC 6	Calendering operations.
PROC 7	Industrial spraying

PROC 9	Transfer of substance or preparation into small containers (dedicated filling lines, including weighing)
PROC 10	Roller application or brushing
PROC 11	Non-industrial spraying
PROC 12	Use of blowing agents in manufacture of foam
PROC 13	Treatment of articles by dipping and pouring
PROC 14	Production of preparations or articles by tabletting, compression, extrusion, pelletisation
PROC 15	Use as laboratory reagent
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected
PROC 17	Lubrication at high energy conditions and in partly open process
PROC 19	Hand-mixing with intimate contact and only PPE available.
PROC 20	Heat and pressure transfer fluids in dispersive, professional use but closed systems
PROC 21	Low energy manipulation of substances bound in materials and/or articles.
PROC 22	Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting.
PROC 24	High (mechanical) energy work-up of substances bound in materials and/or articles.
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.

ERC	**Environmental Release Category**
ERC 1	Manufacture of substances
ERC 2	Formulation of preparations
ERC 3	Formulation in materials
ERC 4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC 5	Industrial use resulting in inclusion into or onto a matrix
ERC 6a	Industrial use resulting in manufacture of another substance (use of intermediates).
ERC 6b	Industrial use of reactive processing aids
ERC 6c	Industrial use of monomers for manufacture of thermoplastics.
ERC 6d	Industrial use of auxiliaries for polymerisation processes in production of resins, rubbers, polymers
ERC 7	Industrial use of substances in closed systems.
ERC 8a	Wide dispersive indoor use of processing aids in open systems
ERC 8b	Wide dispersive indoor use of reactive substances in open systems
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix.

ERC 8d	Wide dispersive outdoor use of processing aids in open systems.
ERC 8e	Wide dispersive outdoor use of reactive substances in open systems.
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or onto a matrix
ERC 9a	Wide dispersive indoor use of reactive substances in closed systems.
ERC 9b	Wide dispersive outdoor use of reactive substances in closed systems
ERC 10a	Wide 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

PC	**Market Sector by Type of Chemical Product**
PC 0	Other: flame retardant agent
PC 1	Adhesives, sealants
PC 3	Air care products
PC 4	Anti-freeze and de-icing products
PC 11	Explosives
PC 12	Fertilizers
PC 13	Fuels
PC 14	Metal surface treatment products, including galvanic and electroplating products
PC 15	Non-metal-surface treatment products
PC 16	Heat transfer fluids
PC 17	Hydraulic fluids
PC 18	Ink and toners
PC 19	Intermediate
PC 20	Products such as ph-regulators, flocculants, precipitants, neutralisation agents
PC 21	Laboratory chemicals
PC 23	Leather tanning, dye, finishing, impregnation and care products
PC 24	Lubricants, greases, release products
PC 25	Metal working fluids
PC 26	Paper and board dye, finishing and impregnation products: including bleaches and other processing aids
PC 27	Plant protection products
PC 28	Perfumes, fragrances
PC 29	Pharmaceuticals
PC 31	Polishes and wax blends
PC 32	Polymer preparations and 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 36	Water softeners
PC 37	Water treatment chemicals
PC 39	Cosmetics, personal care products
PC 9a	Coatings and paints, thinners, paint removes
PC 9b	Fillers, putties, plasters, modelling clay

AC	**Article Category Related to Subsequent Service Life**
AC 1	Vehicles
AC 2	Machinery, mechanical appliances, electrical/electronic articles
AC 4	Stone, plaster, cement, glass and ceramic articles
AC 7	Metal articles
AC 8	Paper articles
AC 10	Rubber articles
AC 11	Wood articles
AC 13	Plastic articles

This SDS is prepared for the purpose of providing health, safety and environmental data. The information given corresponds with our actual knowledge and experience. While the descriptions, data and information contained in the present datasheet are provided in good faith, these are to be considered as guidance only. Thus, this SDS shall not constitute a guarantee for any specific properties or quality standards.

This information is meant to describe our product in view of possible safety requirements, but it remains the responsibility of the customer to determine the applicability of the information and suitability of any product for its own particular purpose, to provide a safe workplace and comply with all applicable laws and regulations.

Since handling, storage, use and disposal is of the product are beyond our control and our knowledge, we do exclude any responsibility connecting to handling, storage, use or disposal of this product.

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