

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name or designation of the mixture	ARMORTECH 65AL
Registration number	-
Synonyms	None.
Brand Code	418B
Issue date	12-November-2015
Version number	04
Revision date	12-November-2015
Supersedes date	01-July-2015

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

Identified uses	For Industrial Use Only
Uses advised against	Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

1.3. Details of the supplier of the safety data sheet

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The mixture has been assessed and/or tested for its physical, health and environmental hazards and the following classification applies.

Classification according to Directive 67/548/EEC or 1999/45/EC as amended

This preparation does not meet the criteria for classification according to Directive 1999/45/EC as amended.

Classification according to Regulation (EC) No 1272/2008 as amended

This mixture does not meet the criteria for classification according to Regulation (EC) 1272/2008 as amended.

Hazard summary

Physical hazards	Not classified for physical hazards.
Health hazards	Not classified for health hazards. However, occupational exposure to the mixture or substance(s) may cause adverse health effects.
Environmental hazards	Not classified for hazards to the environment.
Specific hazards	Prolonged exposure may cause chronic effects.
Main symptoms	Direct contact with eyes may cause temporary irritation.

2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 as amended

Hazard pictograms	None.
Signal word	None.
Hazard statements	The mixture does not meet the criteria for classification.

Precautionary statements

Prevention	Observe good industrial hygiene practices.
Response	Wash hands after handling.
Storage	Store away from incompatible materials.
Disposal	Dispose of waste and residues in accordance with local authority requirements.

Supplemental label information

Users should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Overexposure to the respirable dust of crystalline silica (quartz or cristobalite, less than or equal to 5 microns in size) may lead to silicosis in humans, which is a progressive and irreversible lung disease. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

General information

Chemical name	%	CAS-No. / EC No.	REACH Registration No.	INDEX No.	Notes
Aluminium Oxide (Non-Fibrous)	20 - < 30	1344-28-1 215-691-6	01-2119529248-35-0134	-	
Classification:	DSD: -				
	CLP: -				
Cement, Alumina, Chemicals	5 - < 10	65997-16-2 266-045-5	-	-	
Classification:	DSD: -				
	CLP: -				
TRADE SECRET	1 - < 3	Proprietary	-	-	#
Classification:	DSD: T;R25				
	CLP: Acute Tox. 3;H301				

Other components below reportable levels 60 - < 70

List of abbreviations and symbols that may be used above

CLP: Regulation No. 1272/2008.

DSD: Directive 67/548/EEC.

M: M-factor

vPvB: very persistent and very bioaccumulative substance.

PBT: persistent, bioaccumulative and toxic substance.

#: This substance has been assigned Community workplace exposure limit(s).

Composition comments The full text for all R- and H-phrases is displayed in section 16.

SECTION 4: First aid measures

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

4.1. Description of first aid measures

Inhalation Move to fresh air. Call a physician if symptoms develop or persist.

Skin contact Wash off with soap and water. Get medical attention if irritation develops and persists.

Eye contact Rinse with water. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. Get medical attention if symptoms occur.

4.2. Most important symptoms and effects, both acute and delayed Direct contact with eyes may cause temporary irritation.

4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards Not available.

5.1. Extinguishing media

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media Not available.

5.2. Special hazards arising from the substance or mixture Not available.

5.3. Advice for firefighters

Special protective equipment for firefighters Not available.

Special fire fighting procedures Not available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Keep unnecessary personnel away. For personal protection, see section 8.
For emergency responders	Keep unnecessary personnel away. Use personal protection recommended in Section 8 of the SDS.

6.2. Environmental precautions Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

6.4. Reference to other sections For personal protection, see section 8. For waste disposal, see section 13 of the SDS.

SECTION 7: Handling and storage

7.1. Precautions for safe handling Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Observe good industrial hygiene practices.

7.2. Conditions for safe storage, including any incompatibilities Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

7.3. Specific end use(s) Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

Austria. MAK List, OEL Ordinance (GwV), BGBl. II, no. 184/2001

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	MAK	5 mg/m ³	Respirable fraction.
		5 mg/m ³	Respirable fume.
	STEL	10 mg/m ³	Inhalable fraction.
		20 mg/m ³	Inhalable fraction.
		10 mg/m ³	Respirable fume.
Amorphous silica (CAS 7631-86-9)	MAK	10 mg/m ³	Respirable fraction.
		4 mg/m ³	Inhalable fraction.
Fumes, Silica (CAS 69012-64-2)	MAK	0,3 mg/m ³	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	MAK	5 mg/m ³	Respirable dust.
		10 mg/m ³	Respirable dust.
	STEL	10 mg/m ³	Respirable dust.
TRADE SECRET	MAK	2,5 mg/m ³	Inhalable fraction.
	STEL	12,5 mg/m ³	Inhalable fraction.

Belgium. Exposure Limit Values.

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	1 mg/m ³	Respirable fraction.
Amorphous silica (CAS 7631-86-9)	TWA	10 mg/m ³	
Barium Sulfate (CAS 7727-43-7)	TWA	10 mg/m ³	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³	
TRADE SECRET	TWA	2,5 mg/m ³	

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	10 mg/m ³	Dust.
		1,5 mg/m ³	Respirable fraction.

Bulgaria. OELs. Regulation No 13 on protection of workers against risks of exposure to chemical agents at work

Components	Type	Value	Form
Amorphous silica (CAS 7631-86-9)	TWA	10 mg/m3	Inhalable fraction.
Barium Sulfate (CAS 7727-43-7)	TWA	0,07 mg/m3	Respirable fraction.
		10 mg/m3	
Fumes, Silica (CAS 69012-64-2)	TWA	10 mg/m3	Inhalable fraction.
		0,07 mg/m3	Respirable fraction.
Mullite (CAS 1302-93-8)	TWA	2 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	Respirable dust.

Croatia. Dangerous Substance Exposure Limit Values in the Workplace (ELVs), Annexes 1 and 2, Narodne Novine, 13/09

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	MAC	4 mg/m3	Respirable dust.
Amorphous silica (CAS 7631-86-9)	MAC	10 mg/m3	Total dust.
		6 mg/m3	Total dust.
Barium Sulfate (CAS 7727-43-7)	MAC	2,4 mg/m3	Respirable dust.
		4 mg/m3	Respirable dust.
Fumes, Silica (CAS 69012-64-2)	MAC	10 mg/m3	Total dust.
		6 mg/m3	Total dust.
Titanium dioxide (CAS 13463-67-7)	STEL	2,4 mg/m3	Respirable dust.
		4 mg/m3	Respirable dust.
TRADE SECRET	MAC	10 mg/m3	Total dust.
		2,5 mg/m3	

Cyprus. OELs. Control of factory atmosphere and dangerous substances in factories regulation, PI 311/73, as amended.

Components	Type	Value
Amorphous silica (CAS 7631-86-9)	TWA	2 mg/m3
Fumes, Silica (CAS 69012-64-2)	TWA	2 mg/m3
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3

Czech Republic. OELs. Government Decree 361

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	0,1 mg/m3	Respirable dust.
Amorphous silica (CAS 7631-86-9)	TWA	4 mg/m3	Dust.
Fumes, Silica (CAS 69012-64-2)	TWA	4 mg/m3	Dust.
TRADE SECRET	Ceiling	5 mg/m3	
	TWA	2,5 mg/m3	

Denmark. Exposure Limit Values

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TLV	5 mg/m3	Total
Fumes, Silica (CAS 69012-64-2)	TLV	2 mg/m3	Respirable.
		2 mg/m3	Respirable.
Titanium dioxide (CAS 13463-67-7)	TLV	6 mg/m3	
TRADE SECRET	TLV	2,5 mg/m3	

Estonia. OELs. Occupational Exposure Limits of Hazardous Substances. (Annex of Regulation No. 293 of 18 September 2001)

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	4 mg/m ³	Respirable dust.
Amorphous silica (CAS 7631-86-9)	TWA	10 mg/m ³ 2 mg/m ³	Total dust. Respirable dust.
Fumes, Silica (CAS 69012-64-2)	TWA	2 mg/m ³	Respirable dust.
Mullite (CAS 1302-93-8)	TWA	2 mg/m ³	
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m ³	

Finland. Workplace Exposure Limits

Components	Type	Value	Form
Barium Sulfate (CAS 7727-43-7)	TWA	10 mg/m ³	Dust.
Fumes, Silica (CAS 69012-64-2)	TWA	5 mg/m ³	
Mullite (CAS 1302-93-8)	TWA	2 mg/m ³	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³	Dust.
TRADE SECRET	TWA	1 mg/m ³	

France. Threshold Limit Values (VLEP) for Occupational Exposure to Chemicals in France, INRS ED 984

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	VME	10 mg/m ³	
Titanium dioxide (CAS 13463-67-7)	VME	10 mg/m ³	
TRADE SECRET	VME	2,5 mg/m ³	

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG)

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	4 mg/m ³	Inhalable dust.
Barium Sulfate (CAS 7727-43-7)	TWA	1,5 mg/m ³ 4 mg/m ³	Respirable dust. Inhalable fraction.
		1,5 mg/m ³	Respirable fraction.

Germany. TRGS 900, Limit Values in the Ambient Air at the Workplace

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	AGW	10 mg/m ³	Inhalable fraction.
Amorphous silica (CAS 7631-86-9)	AGW	1,25 mg/m ³ 4 mg/m ³	Respirable fraction. Inhalable fraction.
Barium Sulfate (CAS 7727-43-7)	AGW	10 mg/m ³	Inhalable fraction.
Fumes, Silica (CAS 69012-64-2)	AGW	1,25 mg/m ³ 0,3 mg/m ³	Respirable fraction. Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	AGW	10 mg/m ³	Inhalable fraction.
		1,25 mg/m ³	Respirable fraction.

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	5 mg/m ³	Inhalable

Greece. OELs (Decree No. 90/1999, as amended)

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	Respirable.
		5 mg/m3	Respirable.
		10 mg/m3	Inhalable

Hungary. OELs. Joint Decree on Chemical Safety of Workplaces

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	6 mg/m3	Respirable.
TRADE SECRET	STEL	10 mg/m3	
	TWA	2,5 mg/m3	

Iceland. OELs. Regulation 154/1999 on occupational exposure limits

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	10 mg/m3	
Fumes, Silica (CAS 69012-64-2)	TWA	2 mg/m3	Respirable mist.
Mullite (CAS 1302-93-8)	TWA	2 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	6 mg/m3	

Ireland. Occupational Exposure Limits

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	4 mg/m3	Respirable dust.
Amorphous silica (CAS 7631-86-9)	TWA	10 mg/m3	Total inhalable dust.
		6 mg/m3	Total inhalable dust.
Barium Sulfate (CAS 7727-43-7)	TWA	2,4 mg/m3	Respirable dust.
		2 mg/m3	Respirable dust.
Fumes, Silica (CAS 69012-64-2)	TWA	6 mg/m3	Total inhalable dust.
		2,4 mg/m3	Respirable dust.
Titanium dioxide (CAS 13463-67-7)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Total inhalable dust.

Italy. Occupational Exposure Limits

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction.
Barium Sulfate (CAS 7727-43-7)	TWA	5 mg/m3	Inhalable fraction.
Mullite (CAS 1302-93-8)	TWA	1 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	6 mg/m3	Decomposition aerosol.
Amorphous silica (CAS 7631-86-9)	TWA	4 mg/m3	
		1 mg/m3	
Fumes, Silica (CAS 69012-64-2)	TWA	1 mg/m3	
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3	
TRADE SECRET	STEL	2,5 mg/m3	

Latvia. OELs. Occupational exposure limit values of chemical substances in work environment

Components	Type	Value	Form
	TWA	0,5 mg/m3	

Lithuania. OELs. Limit Values for Chemical Substances, General Requirements

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	5 mg/m3	Inhalable fraction.
Mullite (CAS 1302-93-8)	TWA	2 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	TWA	1 mg/m3	
	TWA	5 mg/m3	

Luxembourg. Binding Occupational exposure limit values (Annex I), Memorial A

Components	Type	Value
TRADE SECRET	TWA	2,5 mg/m3

Malta. OELs. Occupational Exposure Limit Values (L.N. 227. of Occupational Health and Safety Authority Act (CAP. 424), Schedules I and V)

Components	Type	Value
TRADE SECRET	TWA	2,5 mg/m3

Netherlands. OELs (binding)

Components	Type	Value
TRADE SECRET	STEL	2 mg/m3

Norway. Administrative Norms for Contaminants in the Workplace

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TLV	10 mg/m3	
Amorphous silica (CAS 7631-86-9)	TLV	1,5 mg/m3	Respirable dust.
Fumes, Silica (CAS 69012-64-2)	TLV	1,5 mg/m3	Respirable dust.
Titanium dioxide (CAS 13463-67-7)	TLV	5 mg/m3	
TRADE SECRET	TLV	0,5 mg/m3	

Poland. MACs. Minister of Labour and Social Policy Regarding Maximum Allowable Concentrations and Intensities in Working Environment

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	2,5 mg/m3	Inhalable fraction.
Amorphous silica (CAS 7631-86-9)	TWA	1,2 mg/m3	Respirable fraction.
		2 mg/m3	Respirable fraction.
Titanium dioxide (CAS 13463-67-7)	STEL	10 mg/m3	Inhalable fraction.
		30 mg/m3	
	TWA	10 mg/m3	Inhalable fraction.

Portugal. OELs. Decree-Law n. 290/2001 (Journal of the Republic - 1 Series A, n.266)

Components	Type	Value
TRADE SECRET	TWA	2,5 mg/m3

Portugal. VLEs. Norm on occupational exposure to chemical agents (NP 1796)

Components	Type	Value
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	10 mg/m3
Barium Sulfate (CAS 7727-43-7)	TWA	10 mg/m3
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m3
TRADE SECRET	TWA	2,5 mg/m3

Romania. OELs. Protection of workers from exposure to chemical agents at the workplace

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	STEL	5 mg/m ³	Aerosol
	TWA	1,2 ppm	Aerosol
		2 mg/m ³	Aerosol
Titanium dioxide (CAS 13463-67-7)	STEL	0,5 ppm	Aerosol
	TWA	15 mg/m ³	
TRADE SECRET	TWA	10 mg/m ³	
	TWA	2,5 mg/m ³	

Slovakia. OELs. Regulation No. 300/2007 concerning protection of health in work with chemical agents

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	4 mg/m ³	Inhalable fraction.
		1,5 mg/m ³	Respirable fraction.
Amorphous silica (CAS 7631-86-9)	TWA	0,1 mg/m ³	
		0,3 mg/m ³	
Barium Sulfate (CAS 7727-43-7)	TWA	4 mg/m ³	Inhalable fraction.
		1,5 mg/m ³	Respirable fraction.
Fumes, Silica (CAS 69012-64-2)	TWA	0,3 mg/m ³	
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m ³	
TRADE SECRET	TWA	2,5 mg/m ³	

Slovenia. OELs. Regulations concerning protection of workers against risks due to exposure to chemicals while working (Official Gazette of the Republic of Slovenia)

Components	Type	Value	Form
Amorphous silica (CAS 7631-86-9)	TWA	4 mg/m ³	Inhalable fraction.
Fumes, Silica (CAS 69012-64-2)	TWA	4 mg/m ³	Inhalable fraction.

Spain. Occupational Exposure Limits

Components	Type	Value
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	10 mg/m ³
Barium Sulfate (CAS 7727-43-7)	TWA	10 mg/m ³
Titanium dioxide (CAS 13463-67-7)	TWA	10 mg/m ³
TRADE SECRET	TWA	2,5 mg/m ³

Sweden. Occupational Exposure Limit Values

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	5 mg/m ³	Total dust.
		2 mg/m ³	Respirable dust.
Mullite (CAS 1302-93-8)	TWA	1 mg/m ³	Total dust.
Titanium dioxide (CAS 13463-67-7)	TWA	5 mg/m ³	Total dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	STEL	24 mg/m ³	Fume and respirable dust.
	TWA	3 mg/m ³	Respirable dust.
		3 mg/m ³	Fume and respirable dust.

Switzerland. SUVA Grenzwerte am Arbeitsplatz

Components	Type	Value	Form
Titanium dioxide (CAS 13463-67-7)	TWA	3 mg/m ³	Respirable dust.
TRADE SECRET	STEL	4 mg/m ³	Inhalable dust.
	TWA	1 mg/m ³	Inhalable dust.

UK. EH40 Workplace Exposure Limits (WELs)

Components	Type	Value	Form
Aluminium Oxide (Non-Fibrous) (CAS 1344-28-1)	TWA	4 mg/m ³	Respirable dust.
Amorphous silica (CAS 7631-86-9)	TWA	10 mg/m ³	Inhalable dust.
		6 mg/m ³	Inhalable dust.
Barium Sulfate (CAS 7727-43-7)	TWA	2,4 mg/m ³	Respirable dust.
		4 mg/m ³	Respirable dust.
Fumes, Silica (CAS 69012-64-2)	TWA	10 mg/m ³	Inhalable dust.
		6 mg/m ³	Inhalable dust.
Titanium dioxide (CAS 13463-67-7)	TWA	2,4 mg/m ³	Respirable dust.
		4 mg/m ³	Respirable.
TRADE SECRET	TWA	10 mg/m ³	Inhalable
		2,5 mg/m ³	

EU. Indicative Exposure Limit Values in Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU

Components	Type	Value
TRADE SECRET	TWA	2,5 mg/m ³

Biological limit values**Czech Republic. Limit Values for Indicators of Biological Exposure Tests in Urine and Blood, Annex 2, Tables 1 and 2, Government Decree 432/2003 Sb.**

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	60 µmol/mmol	Fluoride	Creatinine in urine	*
	10 mg/g	Fluoride	Creatinine in urine	*

* - For sampling details, please see the source document.

France. Biological indicators of exposure (IBE) (National Institute for Research and Security (INRS, ND 2065))

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	3 mg/g	Fluorures	Creatinine in urine	*
	10 mg/g	Fluorures	Creatinine in urine	*

* - For sampling details, please see the source document.

Germany. TRGS 903, BAT List (Biological Limit Values)

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	7 mg/g	Fluorid	Creatinine in urine	*
	4 mg/g	Fluorid	Creatinine in urine	*

* - For sampling details, please see the source document.

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	7 mg/g	fluoride	Creatinine in urine	*
	4 mg/g	fluoride	Creatinine in urine	*
	42 µmol/mmol	fluoride	Creatinine in urine	*

Hungary. Chemical Safety at Workplace Ordinance Joint Decree No. 25/2000 (Annex 2): Permissible limit values of biological exposure (effect) indices

Components	Value	Determinant	Specimen	Sampling time
	24 µmol/mmol	fluoride	Creatinine in urine	*

* - For sampling details, please see the source document.

Slovakia. BLVs (Biological Limit Value). Regulation no. 355/2006 concerning protection of workers exposed to chemical agents, Annex 2

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	7 mg/g	Fluorides	Creatinine in urine	*
	4 mg/g	Fluorides	Creatinine in urine	*

* - For sampling details, please see the source document.

Spain. Biological Limit Values (VLBs), Occupational Exposure Limits for Chemical Agents, Table 4

Components	Value	Determinant	Specimen	Sampling time
TRADE SECRET	8 mg/l	Fluoruros	Urine	*

* - For sampling details, please see the source document.

Recommended monitoring procedures Follow standard monitoring procedures.

Derived no-effect level (DNEL) Not available.

Predicted no effect concentrations (PNECs) Not available.

Exposure guidelines Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. The resin binder in this product was specifically engineered to have low toxicity, with minimal free-phenol (less than 100ppm in this refractory product) and no free-formaldehyde. Under certain conditions, thermal decomposition products may still include carbon monoxide, carbon dioxide, formaldehyde, phenol and aromatic and/or aliphatic compounds.

8.2. Exposure controls

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment.

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

- **Hand protection** Wear appropriate chemical resistant gloves.

- **Other** Wear suitable protective clothing.

Respiratory protection Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.



Hygiene measures Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Environmental exposure controls Environmental manager must be informed of all major releases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state Solid.

Form	Solid.
Colour	Not available.
Odour	Not available.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.
Solubility (other)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Explosive properties	Not available.
Oxidizing properties	Not available.
9.2. Other information	No relevant additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
10.2. Chemical stability	Material is stable under normal conditions.
10.3. Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4. Conditions to avoid	Contact with incompatible materials. Refractories containing crystalline silica may, after service, contain more or less crystalline silica. Care must be taken to avoid and/or control dust from demolition. If in doubt of the proper protection, seek advice from a safety professional. The organic binder in this product falls into a class known as phenolic resin. Refractory products using this type of binder are supplied in two forms, (1) shaped products such as brick and (2) monolithics such as refractory plastics and rams. The hazards associated with phenolic resin are different in the two forms. For pre-cured shapes (brick), the binder has been reacted or polymerized by heat to its solid form prior to shipment. On decomposition by heating, where there is sufficient air and heating rate, the gaseous products are mostly carbon dioxide and water. Under low or limited oxygen supply, decomposition products during heat-up and early service may include phenol, as well as aromatic and/or aliphatic derivatives. After a campaign in service, this refractory product should be completely coked and in that condition the material for disposal would be carbon and an inorganic oxide. During field installation of non-cured unshaped products (monolithics), there is a possibility of exposure to trace amounts of phenol by skin contact and inhalation. After the product has been heated to high temperatures in service, it will have similar decomposition characteristics to pre-cured shapes.
10.5. Incompatible materials	Acids. Aluminium. Phosphorus. Fluorine. Chlorine. Incompatibility is based strictly upon potential theoretical reactions between chemicals and may not be specific to industrial application exposure. Contact your sales representative for clarification.
10.6. Hazardous decomposition products	No hazardous decomposition products are known.

SECTION 11: Toxicological information

General information	Occupational exposure to the substance or mixture may cause adverse effects.
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Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.

Symptoms Exposure may cause temporary irritation, redness, or discomfort.

11.1. Information on toxicological effects

Acute toxicity	No data available.
Skin corrosion/irritation	Due to partial or complete lack of data the classification is not possible.
Serious eye damage/eye irritation	Due to partial or complete lack of data the classification is not possible.
Respiratory sensitisation	Due to partial or complete lack of data the classification is not possible.
Skin sensitisation	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However in making the overall evaluation, IARC noted that "carcinogenicity was not detected in all industrial circumstances studied. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.) In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

TRADE SECRET (CAS Proprietary)

3 Not classifiable as to carcinogenicity to humans.

Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Mixture versus substance information	No information available.
Other information	This product has no known adverse effect on human health.

SECTION 12: Ecological information

12.1. Toxicity	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
12.2. Persistence and degradability	No data is available on the degradability of this product.
12.3. Bioaccumulative potential	
Partition coefficient n-octanol/water (log Kow)	Not available.
Bioconcentration factor (BCF)	Not available.
12.4. Mobility in soil	No data available.
12.5. Results of PBT and vPvB assessment	Not available.
12.6. Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Residual waste	Not available.
Contaminated packaging	Not available.
EU waste code	Not available.
Disposal methods/information	Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

SECTION 14: Transport information

ADR

Not regulated as dangerous goods.

RID

Not regulated as dangerous goods.

ADN

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex I

Not listed.

Regulation (EC) No. 2037/2000 on substances that deplete the ozone layer, Annex II

Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 1

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 2

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex I, part 3

Not listed.

Regulation (EC) No. 689/2008 concerning the export and import of dangerous chemicals, Annex V

Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry

Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed.

Authorisations

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended

Not listed.

Restrictions on use

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use

Not regulated.

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work

Not listed.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding

Not listed.

Other EU regulations

Directive 96/82/EC (Seveso II) on the control of major-accident hazards involving dangerous substances

Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Not listed.

Directive 94/33/EC on the protection of young people at work

Not listed.

Other regulations

The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

National regulations

Follow national regulation for work with chemical agents.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

List of abbreviations

Not available.

References

Not available.

Information on evaluation method leading to the classification of mixture

Not available.

Full text of any statements or R-phrases and H-statements under Sections 2 to 15

R25 Toxic if swallowed.
H301 Toxic if swallowed.

Revision information

None.

Training information

Not available.

Disclaimer

This information is based on our present knowledge on creation date. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.