IMERYS

SAFETY DATA SHEET

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : MULCOA® 60 / MULGRAIN® 60 / MULCOA® F60

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

Refractory mineral for the following applications (non-exhaustive list): refractory product, ceramic product, foundry sand, additive for slag formation in metallurgy, etc.

1.3. Details of the supplier of the safety data sheet

Registered company name : Imerys Refractory Minerals.
Address : 100 Mansell Ct. E, Ste 615.GA 30076.Roswell.USA.
Telephone : +1 (770) 225-7923. Fax : .
product_stewardship_irm@imerys.com
www.imerys.com

1.4. Emergency telephone number : +1 (229) 924-4461.

Association/Organisation : After 5PM weekdays, weekends and holidays: +1 (229) 815-1036.

Other emergency numbers

CHEMTREC for USA and Canada: +1 800 424 93 00
Québec Poison Control Centre (24 hours a day; 7 days a week): 1 800 463 5060
Mexico Toxicología MX helpline: 01 (55) 78228288

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

HCS compliant.

This substance does not present a physical hazard. Refer to the recommendations regarding the other products present on the site.
This substance does not present a health hazard with the exception of possible occupational exposure thresholds (see paragraphs 3 and 8).

2.2. Label elements

HCS compliant.

No labelling requirements for this substance.

2.3. Other hazards

None to our knowlegde

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Composition :

CALCINED KAOLIN (CAS: 92704-41-1): 100%
Mineralogical phases:

Identification	HCS	Nota	%
CAS: 1302-93-8 EC: 215-113-2 MULLITE			50 <= x % < 100
CAS: 7631-86-9 EC: 231-545-4 SILICON DIOXIDE (AMORPHOUS)		[1]	10 <= x % < 25
CAS: 14464-46-1 EC: 238-455-4 CRISTOBALITE	GHS08 Dgr STOT RE 1, H372	[1]	0 <= x % < 0.5

Information on ingredients :

[1] Substance for which maximum workplace exposure limits are available.

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. Description of first aid measures

In the event of exposure by inhalation :

Move the person away from the contaminated area into fresh air.

In the event of splashes or contact with eyes :

Rinse with copious quantities of water and seek medical attention if irritation persists.

In the event of splashes or contact with skin :

No first aid measure required.

In the event of swallowing :

No first aid measure required.

4.2. Most important symptoms and effects, both acute and delayed

No acute or delayed symptom or effect is observed.

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

No need for immediate medical attention. Follow the advice given in section 4.1.

SECTION 5 : FIREFIGHTING MEASURES

Non-flammable.

5.1. Extinguishing media

Suitable methods of extinction

No specific extinguishing media is needed.

Unsuitable methods of extinction

No restriction on the extinguishing media to be used.

5.2. Special hazards arising from the substance or mixture

None. The material is not flammable and it does not lead to hazardous thermal decomposition products.

5.3. Advice for firefighters

No specific fire-fighting protection is required.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

For non first aid worker

Avoid generation of airborne dust.

Ensure adequate ventilation.

Keep unprotected persons away.

Avoid contact with skin, eyes and personal clothing. Wear suitable protective equipment (see section 8).

Avoid inhalation of dust. Ensure that sufficient ventilation or suitable respiratory protective equipment is used (see section 8).

Beware of wet product on floor, which presents a slip hazard.

For first aid worker

Avoid generation of airborne dust.

Ensure adequate ventilation.

Keep unprotected persons away.

Avoid contact with skin, eyes and personal clothing. Wear suitable protective equipment (see section 8).

Avoid inhalation of dust. Ensure that sufficient ventilation or suitable respiratory protective equipment is used (see section 8).

Beware of wet product on floor, which presents a slip hazard.

6.2. Environmental precautions

No special environmental measure is necessary.

6.3. Methods and material for containment and cleaning up

Avoid dry sweeping and use water spraying or vacuum cleaning systems to prevent airborne dust generation. Wear personal protective equipment in compliance with national legislation.

6.4. Reference to other sections

For more information on exposure controls/personal protection or disposal considerations, please refer to sections 8 and 13 of this safety data sheet.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the substance is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Avoid the generation of airborne dust.

Comply with OSHA Hazard Communication Rule 29 CFR 1910.1200, and applicable federal, state, and local worker or community "right to know" laws and regulations during storage, use and disposal of this product.

For further information, consult the American Society for Testing and Materials (ASTM) standard practice: ASTM E 1132 Revision 99 A, "Standard Practice for Health Requirements Relating to Occupational Exposure to Crystalline Silica."

Fire prevention :

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Provide appropriate exhaust ventilation at places where airborne dust is generated. In case of insufficient ventilation, wear suitable respiratory protective equipment (refer to section 8 of this safety data sheet). Other suitable controls may include enclosure, isolation, water suppression. Handle packaged products carefully to prevent accidental bursting.

Shower and change clothes at end of work shift.

Wash work clothes regularly.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the substance is used.

Do not wear contaminated clothing at home.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry covered area. Minimise airborne dust generation and prevent wind dispersal during loading and unloading. Keep containers closed and store packaged products so as to prevent accidental bursting.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

If you require advice on specific uses, please contact your supplier.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits :

Maintain personal exposure below occupational exposure limits for dust (inhalable and respirable) as dictated in the national legislation.

- USA / NIOSH IDLH (National Institute for Occupational Safety and Health, Immediately Dangerous to Life or Health Concentrations) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
7631-86-9	6 mg/m3				
14464-46-1	-	-	25 mg/m3	-	-

- ACGIH TLV (American Conference of Governmental Industrial Hygienists, Threshold Limit Values, 2010) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.025 (R) mg/m3			A4	

- UK / WEL (Workplace exposure limits, EH40/2005, 2011) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.3 mg/m3	-	-	-	R

- USA / NIOSH REL (National Institute for Occupational Safety and Health, Recommended exposure limits) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.05 mg/m3	-	-	-	R

- USA / OSHA PEL (Occupational Safety and Health Administration, Permissible Exposure Limits) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	-	-	-	-	T

- Canada / Alberta (Occupational health and safety code, 2009) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.025 mg/m3				

- Canada / British Colombia (2009) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.025 mg/m3				

- Mexico :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.05 mg/m3	-	-	-	R

- Canada / Ontario (Control of exposure to biological or chemical agents, regulation 491/2009) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.05 (R) mg/m3				

- Canada / Quebec (Regulations on occupational health and safety) :

CAS	TWA :	STEL :	Ceiling :	Definition :	Criteria :
14464-46-1	0.05 mg/m3			Pr	

8.2. Exposure controls

Appropriate engineering controls

Minimise airborne dust generation. Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below specified exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne particles below the exposure limit.

Apply organisational measures, e.g. by isolating personnel from dusty areas. Remove and wash soiled clothing.

Where there is a potential exposure to crystalline silica, the following warnings should be readily visible and posted near entrances or access-ways to work areas: "WARNING! FREE SILICA WORK AREA. Unauthorized persons keep out."

The following warning should be posted within the work area where potential exposure may occur: "WARNING! FREE SILICA WORK AREA. Avoid Breathing Dust. May Cause Delayed Lung Injury (silicosis)."

(NIOSH Criteria Document, Occupational Exposure to Crystalline Silica, pg. 5, 1974). Medical surveillance program in accordance with "Criteria for a Recommended Standard Occupational Exposure to Crystalline Silica", NIOSH, pp.: 2-4, 1974.

Personal protection measures, such as personal protective equipment

Pictogram(s) indicating the obligation of wearing personal protective equipment (PPE) :

Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Wear safety glasses with side-shields, or tight-fitting full-vision goggles in circumstances where there is a risk of penetrative eye injuries. Do not wear contact lenses.

- Hand protection

Wear suitable protective gloves in the event of prolonged or repeated skin contact.

For hands, appropriate protection (e.g. PVC, neoprene or natural rubber gloves) is recommended for workers who suffer from dermatitis or sensitive skin. Wash hands at the end of each work session.

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

- Respiratory protection

Avoid breathing dust.

Appropriate respirator selection is dependent upon the magnitude of exposure and must be selected in accordance with 29 CFR 1910.134. For concentrations above the PEL, a NIOSH approved full facepiece air-purifying respirator with a HEPA filter or powered air-purifying respirator with a tight-fitting facepiece and HEPA filter may be worn.

- Thermal risks

The substance does not represent a thermal hazard, thus special consideration is not required.

Exposure controls linked to environmental protection

All ventilation systems should be filtered before discharge into the atmosphere.

Avoid release into the environment. Contain the spillage.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

General information :

Physical state :	Solid in granules.
Color:	Grey
Odour:	Odourless

Important health, safety and environmental information

pH :	Not stated. Neutral.
Boiling point/boiling range :	Not specified.
Flash point interval :	Not relevant.
Vapour pressure (50°C) :	Not relevant.
Density :	Not stated.
Water solubility :	Insoluble.

	Method for determining the water solubility : Method A.6 (Water solubility) as described in Part A of the Annex to Regulation (EC)No 440/2008
Melting point/melting range :	Not specified.
Self-ignition temperature :	Not specified.
Decomposition point/decomposition range :	Not specified.
Melting point :	>1300°C
Explosive characteristics :	Not explosive
Evaporation rate:	Not applicable (solid with a melting point >450°C)
Flammability (solid, gas):	Not flammable
Vapour density :	Not applicable
Vapour density :	Not applicable
Partition coefficient n-octanol/water:	Not applicable
pH (100 g/l in water at 20°C):	5 -- 8
Oxidising properties :	No oxidising properties (Based on the chemical structure, the substance does not contain a surplus of oxygen or any structural groups known to be correlated with a tendency to react exothermally with combustible material)
Explosive limits :	Not explosive
Viscosity :	Not applicable

9.2. Other information

None

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

Inert, not reactive.

10.2. Chemical stability

This substance is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

No hazardous reaction.

10.4. Conditions to avoid

None, to our knowledge

10.5. Incompatible materials

None, to our knowledge

10.6. Hazardous decomposition products

None, to our knowledge

SECTION 11 : TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

11.1.1. Substances

Acute toxicity :

CALCINED KAOLIN (CAS: 92704-41-1):

Oral: LD50 > 5000 mg/kg [Other guidelines]

Dermal: LD50 > 5000 mg/kg [Other guidelines]

By inhalation (Dust / mist): LC50 > 2.19 mg/l [OECD Test Guideline 403 (Acute inhalation toxicity)]

Skin corrosion/skin irritation :

Kaolin calcined is not irritating to skin (OECD 404).

Serious damage to eyes/eye irritation :

Kaolin calcined is not irritating to eye (OECD 405).

Respiratory or skin sensitisation :

CALCINED KAOLIN (CAS: 92704-41-1):

Lymph node local stimulation test: Not sensitizing. [OECD Test Guideline 429 (Skin sensitization, Local lymph node test)]

Germ cell mutagenicity :

CALCINED KAOLIN (CAS: 92704-41-1):

Mutagenesis (in vitro): Negative. [OECD Test Guideline 471 (Reverse mutation test on bacteria)]

Carcinogenicity :

Read-across with the substance "kaolin": Epidemiological studies covering a large number of workers did not reveal an explicit association between kaolin exposure and tumour formation.

Reproductive toxicant :

No data available.

Specific target organ systemic toxicity - single exposure :

No specific toxicity observed on single exposure tests.

Specific target organ systemic toxicity - repeated exposure :

Read-across with the substance "kaolin": Prolonged and massive exposure to kaolin dust containing respirable crystalline silica may lead to pneumoconiosis. Results indicate that the severity of effects may increase with the amount of crystalline silica in the respirable dust.

Aspiration hazard :

No data available.

Other information

Cristobalite (14464-46-1): IARC group 1 - Carcinogenic to humans

Cristobalite (14464-46-1): National Toxicity Program (NTP) Status: Known Human Carcinogens

Monograph(s) from the IARC (International Agency for Research on Cancer) :

CAS 7631-86-9 : IARC Group 3 : The agent is not classifiable as to its carcinogenicity to humans.

SECTION 12 : ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1. Substances

CALCINED KAOLIN (CAS: 92704-41-1):

Fish toxicity:	LC50 > 1000 mg/l -- Species: Oncorhynchus mykiss -- Exposure time: 96 h -- OECD Test Guideline 203 (Fish, acute toxicity test)
Crustacean toxicity:	EC50 > 707.9 mg/l -- Species: Daphnia magna -- Duration of exposure: 48 h -- OECD Test Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Algae toxicity:	CEr50 > 1000 mg/l -- Species: Raphidocelis subcapitata -- Exposure time: 72 h -- OECD Test Guideline 201 (Algae, Growth inhibition test)

12.2. Persistence and degradability

Abiotic Degradation: The substance is inorganic and therefore will not undergo abiotic degradation

Biodegradation: The substance is inorganic and therefore will not undergo biodegradation.

12.3. Bioaccumulative potential

Not relevant for inorganic substances. Bioaccumulation is not expected.

12.4. Mobility in soil

Kaolin calcined is almost insoluble and thus presents a low mobility in most soils.

12.5. Results of PBT and vPvB assessment

The product does not fulfil the PBT or vPvB criteria.

12.6. Other adverse effects

No other adverse effects are identified.

SECTION 13 : DISPOSAL CONSIDERATIONS

The appropriate waste management of the substance and/or its container must be determined in accordance with local regulations.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Dispose of waste in such a way to avoid dust generation. Where possible, recycling should be preferred to disposal.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

Dust formation from residues in packaging should be avoided and suitable worker protection assured.

SECTION 14 : TRANSPORT INFORMATION

Exempt from transport classification and labelling.

14.1. UN number

Not relevant

-

14.2. UN proper shipping name

-

Not relevant

14.3. Transport hazard class(es)

ADR : not classified

IMDG : not classified

ICAO/IATA : not classified

RID : not classified

-

14.4. Packing group

Not applicable.

-

14.5. Environmental hazards

Not relevant

-

14.6. Special precautions for user

Avoid any release of dust during transportation, by using air-tight tanks for powders and covered trucks for pebbles.

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SECTION 15 : REGULATORY INFORMATION

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

The following regulations have been used:

- OSHA Hazard Communication Standard 29 CFR 1910.1200

- Container information:

No data available.

- Particular provisions :

No data available.

- Clean Water Act : Toxic Pollutants (CWA 307A)

Unlisted.

- Clean Water Act : Hazardous Substances (CWA 311)

Unlisted.

- Clean Water Act : Hazardous Substances (CWA 304b)

Unlisted.

- Clean Water Act : Priority Pollutants (CWA Priority)

Unlisted.

- Clean Air Act : Hazardous Air Pollutants (CAA 112(b) HAP (188))

Unlisted.

- Clean Air Act : Organic Hazardous Air Pollutants National Emission Standards (CAA 112(b) HON (387))

Unlisted.

- Clean Air Act : Protection of Stratospheric Ozone (CAA 602)

Unlisted.

- SARA 110

Unlisted.

- SARA 302/304

Unlisted.

- SARA 313

Unlisted.

- California proposition 65 : Chemicals known to the state to cause cancer or reproductive toxicity

Unlisted.

- Massachusetts : Right to Know

Unlisted.

- New Jersey : Right to Know

CAS	Name
14464-46-1	CRISTOBALITE

- Pennsylvania : Hazardous Substance

CAS	Name
7631-86-9	SILICON DIOXIDE (AMORPHOUS)
14464-46-1	CRISTOBALITE

- Rhode Island : Hazardous substance list

Unlisted.

- TSCA (Toxic Substances Control Act) - USA

All components are listed or exempted.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the substance and not as a guarantee of the properties thereof.

Prolonged and/or massive exposure to respirable crystalline silica-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by deposition in the lungs of fine particles of crystalline silica.

In 1997, the International Agency for Research on Cancer (IARC) concluded that: "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)."

However, IARC pointed out that: "carcinogenicity in humans 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 carcinogenic risks to humans, Volume 68, 1997)

In 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that:

"The main effect in human of the inhalation of respirable silica dust is silicosis. There is sufficient information to conclude that the relative lung cancer risk 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. Since a clear threshold for silicosis development cannot be identified, any reduction of exposure will reduce the risk of silicosis." (SCOEL/SUM/94, November 2003)

So there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis. Worker protection against silicosis should be assured by respecting the existing regulatory occupational exposure limits and implementing additional risk management measures where required.

Wording of the phrases mentioned in section 3 :

H372 Causes damage to organs through prolonged or repeated exposure .

Abbreviations :

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

HCS : Hazard Communication standard (OSHA).