Mulcoa® 47/Mulgrain® 47

Safety Data Sheet

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Date of issue: 07/10/2015 Revision date: 08/20/2015 Supersedes: 02/12/2013

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

1.1. Product identifier

Product form : Mixture

Product name : Mulcoa® 47/Mulgrain® 47

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

High temperature, abrasion and chemically resistant mullite based aggregate used for refractory applications in the processing of metals.

1.3. Details of the supplier of the safety data sheet

Imerys Refractory Minerals
100 Mansell Ct. E, Ste 615
Roswell, GA 30076
T (770) 225-7923
samuel.holden@imerys.com - www.imerys-refractoryminerals.com

1.4. Emergency telephone number

Emergency number : (229) 924-4461
After 5PM weekdays, weekends and holidays: (229) 815-1036

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

STOT RE1 H372

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US)

GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : H372 – Causes damage to lungs through prolonged or repeated exposure via inhalation

Precautionary statements (GHS-US) P260 - Do not breathe dust
P284 - In case of inadequate ventilation wear respiratory protection
P501 - Dispose of contents/container to comply with local/regional/national/international regulations

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

Full text of H-phrases: see section 16

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Calcined Kaolin (Mullite) (Main constituent)	(CAS No) 1332-58-7	65	Not classified
Cristobalite (Constituent)	(CAS No) 14464-46-1	15 - 25	STOT RE1, H372
Amorphous silica (Constituent)	(CAS No) 7631-86-9	10 - 20	Not classified

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Immediate effects are not anticipated. If large amounts of dusts are inhaled, remove to fresh air. If breathing problems occur, a certified professional should administer oxygen or CPR if indicated. Seek immediate medical attention.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting.

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

Symptoms/injuries : Scratching or physical damage to the eyes can cause irritation, redness, pain, tear formation, blurred vision, and light sensitivity. Symptoms of silicosis include phlegm, coughing, and characteristic x-rays. The damaged lungs will become increasingly less able to provide the body with oxygen causing tiredness, shortness of breath, decreased capacity to work, and can result in death by cardiac failure or by the destruction of lung tissue. Shortness of breath upon exertion is one of the most common symptoms of silicosis and limited chest expansion is the most common physical sign.

Symptoms/injuries after inhalation : Long-term dust exposure may aggravate pre-existing respiratory disease. Persons who develop silicosis have greatly increased risks of developing tuberculosis and workers who are exposed to crystalline silica and smoke have increased risks of lung damage.

Symptoms/injuries after skin contact : None anticipated under normal conditions and use.

Symptoms/injuries after eye contact : Particulate matter may scratch the cornea or cause other mechanical injury to the eye.

Symptoms/injuries after ingestion : Practically non-toxic. Ingestion is not anticipated under normal working conditions.

Chronic symptoms : Reported inhalation of respirable cristobalite over a number of years can cause lung disease (silicosis) and increase the risks of developing respiratory cancer. Silicosis is a progressive fibrotic pneumoconiosis which greatly decreases the ability of the lungs to provide oxygen (decreased pulmonary capacity). The disease may progress even if the worker is removed from exposure. The extent and severity of lung injury depends on a variety of factors including particle size, percentage of silica, natural resistance, dust concentration and length of exposure. Long-term exposure to kaolin dust has caused fibrosis in experimental animals and workers.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Any. Use media appropriate for surrounding fire.

Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Not flammable.

Explosion hazard : Product will not burn.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Firefighters should wear a NIOSH approved full-facepiece self-contained breathing apparatus (SCBA) operated in positive pressure mode and full turnout or bunker gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Isolate hazard area and deny entry to unauthorized and/or unprotected personnel. Do not walk through or otherwise scatter spilled material.

6.1.1. For non-emergency personnel

Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : For small spills, clean with a vacuum with a filtration system sufficient to remove and prevent recirculation of crystalline silica (a vacuum equipped with a high-efficiency particulate air (HEPA) filter is recommended). For large spills, use a fine spray or mist to control dust creation and carefully scoop or shovel into clean dry container for later reuse or disposal. DO NOT USE DRY SWEEPING OR COMPRESSED AIR TO CLEAN SPILLS. Completely remove dusts to prevent recirculation of crystalline silica.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : DO NOT use compressed air or dry sweeping to remove dust from work area. Use a vacuum with adequate filtration system to remove dusts. If an appropriate vacuum is unavailable, only wet-clean-up methods should be used (i.e. misting). Moisture should be added as necessary to reduce exposure to airborne respirable silica dust. Do not handle until all safety precautions have been read and understood.

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. standard practice. ASTM E 1132 Revision 99A, "Standard Practice for Health Requirements Relating to Occupational Exposure to Crystalline Silica.".

Hygiene measures : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in dry area in closed containers.

Incompatible products : Oxidizing agent.

Storage area : Storage and work areas should be periodically cleaned to minimize dust accumulation. Avoid dust inhalation and promulgation.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Calcined Kaolin (Mullite) (1332-58-7)		
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³
USA ACGIH	Remark (ACGIH)	Pneumoconiosis
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ Total Dust (5 mg/m3 Respirable fraction)

Cristobalite (14464-46-1)		
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m³ A2
USA OSHA	OSHA PEL (TWA) (mg/m³)	>= 5 mg/m^3/(%SiO2 + 2) Resp
USA OSHA	Remark (US OSHA)	(3) See Table Z-3.

Amorphous silica (7631-86-9)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	20 mppcf (80 mg/m^3/%SiO2)
USA OSHA	Remark (US OSHA)	See Appendix C (Mineral Dusts)

8.2. Exposure controls

Appropriate engineering controls	:	Enclosed processes used in combination with local exhaust ventilation as necessary to control air contaminants at or below acceptable exposure guidelines. Collection systems must be designed and maintained to prevent the accumulation and recirculation of respirable silica into the workplace. OTHER: Where there is a potential exposure to free silica (cristobalite), 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 protective equipment	:	Under normal working conditions, below acceptable exposure guidelines, none is required.
Hand protection	:	Wear protective gloves.
Eye protection	:	Chemical goggles or safety glasses.
Skin and body protection	:	Under dusty conditions, employees should wear coveralls or other suitable work clothing. Contaminated clothing must be vacuumed before removal. DO NOT REMOVE dusts from clothing by blowing or shaking.
Respiratory protection	:	Appropriate respirator selection is dependent upon the magnitude of exposure and must be selected in accordance with 29 CFR 1910.134. For air concentrations above the PEL to 2.5 mg/m3 crystalline silica, 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.
Other information	:	Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Colour	:	White to grayish in color.
Odour	:	Odorless.
Odour threshold	:	No data available
pH	:	6.5 - 8
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	1650 °C (3000 °F)
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Solubility	:	Insoluble.
Log Pow	:	No data available
Log Kow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable. Not established.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Avoid generating dust.

10.5. Incompatible materials

Silica is incompatible with strong oxidizers (i.e. fluorine, oxygen difluoride and chlorine trifluoride).

10.6. Hazardous decomposition products

Thermal decomposition products will produce silicon dioxide and aluminum oxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Mulcoa® 47/Mulgrain® 47	
Additional information	The most common type of silicosis develops following repeated inhalation over time; however, inhalation of high dust concentrations may cause short-term (acute) silicosis

Calcined Kaolin (Mullite) (1332-58-7)	
Additional information	Kaolin dusts will absorb water if ingested. If water intake is sufficient, kaolin will tend to have a laxative effect. When water intake is not sufficient, intestinal obstruction may occur.

Cristobalite (14464-46-1)	
Additional information	LDLo Rat - 200 mg/kg - Lungs, thorax, or respiration: "Fibrosis focal (pneumoconiosis)" Acute silicosis has been reported for exposure to extremely high crystalline silica exposures particularly when the particle size of the dust is very small. Acute silicosis is rapidly progressive with diffuse pulmonary involvement. The disease is often complicated by tuberculosis and can develop several months after the initial exposure with the possibility of death within 1 or 2 years.

Amorphous silica (7631-86-9)	
LD50 dermal rat	> 2000 mg/kg
LC50 inhalation rat (mg/l)	> 2.2 mg/l

Skin corrosion/irritation : Not classified
pH: 6.5 - 8

Serious eye damage/irritation : Not classified
pH: 6.5 - 8

Respiratory or skin sensitisation : Not classified
(Silica particles < 10 µm are considered respirable; however, particles retained in the lungs are generally much smaller. Silica particles retained in the human lung have median diameters of 0.5-0.7 µm.)

Germ cell mutagenicity : Not classified

Mulcoa® 47/Mulgrain® 47	
Additional information	IARC and NTP classify respirable crystalline silica as a confirmed or known human carcinogen.

Cristobalite (14464-46-1)	
IARC group	1 - Carcinogenic to humans
National Toxicity Program (NTP) Status	Known Human Carcinogens

Amorphous silica (7631-86-9)	
IARC group	3 - Not classifiable

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure)	: Category 1
Aspiration hazard	: Not classified
Potential Adverse human health effects and symptoms	: IARC and NTP classify respirable crystalline silica as a confirmed or known human carcinogen.
Symptoms/injuries after inhalation	: Long-term dust exposure may aggravate pre-existing respiratory disease. Persons who develop silicosis have greatly increased risks of developing tuberculosis and workers who are exposed to crystalline silica and smoke have increased risks of lung damage.
Symptoms/injuries after skin contact	: None anticipated under normal conditions and use.
Symptoms/injuries after eye contact	: Particulate matter may scratch the cornea or cause other mechanical injury to the eye.
Symptoms/injuries after ingestion	: Practically non-toxic. Ingestion is not anticipated under normal working conditions.
Chronic symptoms	: Reported inhalation of respirable cristobalite over a number of years can cause lung disease (silicosis) and increase the risks of developing respiratory cancer. Silicosis is a progressive fibrotic pneumoconiosis which greatly decreases the ability of the lungs to provide oxygen (decreased pulmonary capacity). The disease may progress even if the worker is removed from exposure. The extent and severity of lung injury depends on a variety of factors including particle size, percentage of silica, natural resistance, dust concentration and length of exposure. Long-term exposure to kaolin dust has caused fibrosis in experimental animals and workers.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Mulcoa 47 is an inert material. It does not contain ozone depleting substances and is not expected to exert an ecotoxic effect or bioconcentrate in the food chain.

12.2. Persistence and degradability

Mulcoa® 47/Mulgrain® 47	
Persistence and degradability	Not established.

Amorphous silica (7631-86-9)	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Mulcoa® 47/Mulgrain® 47	
Bioaccumulative potential	Not established.

Amorphous silica (7631-86-9)	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT

No dangerous good in sense of transport regulations

Additional information

Other information : No supplementary information available.

ADR

Transport document description :

Transport by sea

No additional information available

Air transport

No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

Calcined Kaolin (Mullite) (1332-58-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Cristobalite (14464-46-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Amorphous silica (7631-86-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Mulcoa® 47/Mulgrain® 47	
WHMIS Classification	Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

(EC) No. 453/2010

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not Classified

15.2.2. National regulations

No additional information available

15.3. US State regulations

Calcined Kaolin (Mullite) (1332-58-7)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - New Jersey - Right to Know Hazardous Substance List

Cristobalite (14464-46-1)
U.S. - Idaho - Non-Carcinogenic Toxic Air Pollutants - Acceptable Ambient Concentrations U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - California - Proposition 65 – This product contains chemicals known to cause cancer in the state of California

SECTION 16: Other information

Data sources : ChemADVISOR, Inc.[https://www.chemadvisor.com]. http://toxnet.nlm.nih.gov/cgi-bin/sis/search2/f?./temp/~OKqi2W:3.

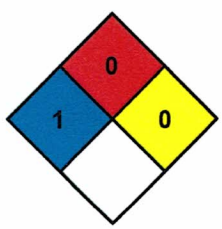
Full text of H-phrases:

STOT RE1	Category 1
H372	Causes damage to lungs through prolonged or repeated exposure via inhalation

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



SDS US (GHS HazCom 2012)

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