

MATERIAL SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Name: R&R Euro-Sil 47

Chemical name/synonyms: Calcined kaolin, calcined clay, chamotte, metakaolin, grog

Manufacturer: Ransom & Randolph
Address: 3535 Briarfield Boulevard
Maumee, Ohio 43537, United States of America

Information Telephone Number: (419) 865-9497

Emergency Telephone Number: (419) 865-9497 (not available outside office hours)

Product Use: ceramics (refractories)

Date of Last Revision: 16 September 2009

MSDS Number: R389

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SECTION 2 HAZARDS IDENTIFICATION

Calcined kaolin does not meet the criteria for classification as dangerous as defined in Directive 67/548/EEC.

The product gives potential for generation of respirable dust during handling and use. Dust may contain respirable crystalline silica. Prolonged and / or massive inhalation of respirable crystalline silica may cause lung fibrosis, commonly referred to as silicosis. Principal symptoms of lung fibrosis are cough and breathlessness. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled.

SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

Anhydrous aluminum silicate: $Al_2O_3 \cdot 2SiO_2$ 3.2. Components

Name	% by weight	CAS N°	EINECS N°	EU Classification
Kaolin, calcined	100 %	92704=41=1	296=473=8	No classification
<u>Constituents / minerals in the substance :</u>				
Mullite	approx. 56 %	1302=93=8	215=113=2	No classification
Cristobalite	approx. 8 %	14464=46=1	238=455=4	Xn R48/20
Quartz	approx. 1 %	14808=60=7	238=878=4	Xn R48/20

Constituents presenting a health hazard

The product may contain crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantity up to 10 %.

See Section 16 for further information on EU Classification.

SECTION 4 FIRST AID MEASURES

No action to be avoided, nor special instructions for rescuers.

Eye contact - For direct contact, flush the affected eye with clean water. If irritation develops, seek medical attention.

Ingestion- No special first aid measure.

Inhalation- Remove from source to fresh air. If symptoms occur, seek medical attention.

Skin contact- Wash with soap and water, rinse after washing.

SECTION 5 FIRE FIGHTING PROCEDURES

Non flammable, non explosive. No hazardous releases in case of fire.

Extinguishing Media: Use media appropriate to the surrounding fire.

Firefighting Procedures: Firefighters should wear full emergency equipment and NIOSH approved positive pressure self-contained breathing apparatus in fires involving chemicals.

Unusual Fire/Explosion Hazards: None known.

Known or Anticipated Hazardous Products of Combustion: None known.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precaution: In case of exposure to prolonged or high level of airborne dust, wear a personal respirator in compliance with national legislation.

Environmental precautions: No special requirement.

Methods for cleaning up: Avoid dry sweeping and use water spraying or ventilated vacuum system to prevent dust formation.

SECTION 7 HANDLING AND STORAGE

Safe handling advice: No special handling precautions are required. Good housekeeping and dust prevention procedures should be followed to minimize dust generation and accumulation. In case of insufficient ventilation, wear suitable respiratory equipment. The product may be handled with bare hands without the use of gloves; however gloves are recommended to prevent drying of skin. An apron may be worn to minimize exposure to the body.

Storage: No specific requirements. Provide appropriate ventilation and store bags such as to prevent any accidental damage. Prevent bags from being wet with drenching amounts of water to maintain the packaging integrity.

Specific use(s): No special technical measures or precautions. Apply above handling advice when mixing with other substances.

SECTION 8 EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure limit values Respect regulatory provisions for dust (total and respirable) and for respirable crystalline silica. Please refer to Annex 1 for the appropriate national exposure limit values.

Exposure controls OCCUPATIONAL EXPOSURE CONTROLS

Use local exhaust ventilation to keep airborne concentrations of dust below permissible exposure levels. Wash hands before breaks and at the end of the workday. Remove and wash soiled clothing.

Respiratory protection In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation.

ENVIRONMENTAL EXPOSURE CONTROLS

No special requirement.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

General information

Physical state Solid (lumps, pellets, granules or powder)

Color Grey

Odor Odorless

Important health, safety and environmental information

Melting temperature	> 1700°C
Boiling point	Not applicable
Flash point	Non flammable
Explosion hazard	Non explosive
Specific gravity	2 - 3
Solubility in water	Negligible (< 100 mg/l)
Solubility in hydrofluoric acid	Yes
pH value in water (100 g/l)	3 - 7

SECTION 10 STABILITY AND REACTIVITY

The product is chemically stable. No particular incompatibility. No hazardous decomposition products.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute effects

Skin irritation data No irritation to skin.

Eye irritation data Mild irritant to eyes.

Chronic effects

Prolonged inhalation of respirable crystalline silica

In 1997, the International Agency for Research on Cancer (IARC) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. (IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibers, 1997, Vol. 68, IARC, Lyon, France). In June 2003, the European Commission's Scientific Committee for Occupational Exposure Limits (SCOEL) concluded:

"that the main effect in humans of the inhalation of respirable crystalline silica 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 Doc 94-final on respirable crystalline silica, June 2003)

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 (see Section 16).

SECTION 12 ECOLOGICAL INFORMATION

No specific adverse effect known. Not persistent, not bio-accumulative.

SECTION 13 DISPOSAL CONSIDERATIONS

Waste from residues / unused products

Can be land filled in compliance with local regulations. The material should be buried to prevent airborne respirable dust being emitted. Where possible, recycling should be preferred to disposal.

Packaging

No specific requirements. In all cases dust formation from residues in the packaging should be avoided and suitable worker protection assured. Recycling and disposal of packaging should be carried out by a suitable waste management company.

SECTION 14 TRANSPORT INFORMATION

No special precaution required under the regulation on transport of dangerous goods. Avoid dust spreading.

Road/Rail transport - DOT (USA) Shipping Name: Not Regulated

DOT Hazard Class: N/A

UN Number: N/A

DOT Labels Required (49CFR172.101): N/A

Air transport - IATA Shipping Name: Not Regulated

IATA Hazard Class: N/A

UN Number: N/A

IATA Hazard Labels Required: N/A

Sea transport - IMDG Shipping Name: Not Regulated

IMDG Class: N/A

UN Number: N/A

IMDG Label: N/A

SECTION 15 REGULATORY INFORMATION

As the product is not classified as dangerous, no labeling is required.

Neither the substance nor its constituents have been classified at EU level, under the dangerous substances and preparations regulation.

Respect regulatory provisions for dust (total and respirable) and for respirable crystalline silica. Please refer to Annex 1 for the appropriate national exposure limit values.

U.S. FEDERAL REGULATIONS:

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III:

Hazard Category For Section 311/312: Chronic health

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

U.S. STATE REGULATIONS

California Proposition 65: This product contains the following substances known to the State of California to cause cancer: Crystalline Silica as Quartz (<1%)

INTERNATIONAL REGULATIONS:

Canadian Environmental Protection Act: All of the components in this product are listed on the Domestic Substances List (DSL).

Canadian WHMIS Classification: Class D Division 2A (quartz)

European Community Labeling: None Required

European Inventory of New and Existing Chemicals Substances (EINECS): All of the components in this product are listed on the EINECS inventory.

Australian Inventory of Chemical Substances: All of the components in this product are listed on the AICS for Australia.

China Inventory of Existing Chemicals and Chemical Substances: All of the components in this product are listed on the IECSC for China.

Japanese Existing and New Chemical Substances: All of the components in this product are listed on the Japanese ENCS list.

Korean Existing Chemicals List: All of the components in this product are listed on the KECL for Korea.

Philippine Inventory of Chemicals and Chemical Substances: All of the components in this product are listed on the PICCS.

SECTION 16 OTHER INFORMATION

Training

Workers must be informed of the presence of crystalline silica and trained in the proper use and handling of this product as required under applicable regulations.

Social Dialogue on Respirable Crystalline Silica

A multi sector "Agreement on Workers' Health Protection Through the Good Handling and Use of Crystalline Silica and Products containing it" was signed on 25 April 2006. This autonomous agreement, which received the European Commission's financial support, is based on Good Practice Guide. The requirements of the agreement came into force on 25 October 2006. The agreement was published in the Official Journal of the European Union (2006/C 279/02). The text of the agreement and its annexes, including the Good Practice Guide, are available from <http://www.nepsi.eu> and provide useful information and guidance for the handling of products containing respirable crystalline silica.

Liability

Such information is the best of Ransom & Randolph's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy itself as to the suitability and completeness of such information for their own particular use.

HMIS Hazard Rating:

Health –1* Fire Hazard – 0 Reactivity – 0

*Chronic Health Hazard

EU Classes and Risk Phrases for Reference (See Sections 2 and 3):

Xn Harmful

R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

Annex 1 – Information Only - User to Verify Applicable Regulations

Occupational Exposure Limits in mg/m³ (respirable fraction)
for the 27 EU member states (excluding Latvia) + Norway & Switzerland

Country	Non specified dust	Quartz	Cristobalite	Tridymite	Amorphous silica	Kaolin	Mica
Austria	6	0.15	0.15	0.15			
Belgium	3	0.1	0.05	0.05	2	2	3
Bulgaria	4	0.07	0.07	0.07			
Czech Republic		0.1	0.1	0.1			2
Cyprus		10*K/Q ^a			2		
Denmark	5	0.1	0.05	0.05		2	
Estonia		0.1	0.05	0.05	2		
Finland		0.2	0.1	0.1			
France ^b		25*K/Q ^c or 5 ^d					
France ^e	5	0.1	0.05	0.05		10 ^f	
Germany	3	^g	0.15	0.15			
Greece	5	0.1	0.05	0.05			
Hungary		0.15	0.1	0.15			
Ireland	4	0.05	0.05	0.05	2.4	2	0.8
Italy	3	0.05	0.05	0.05		2	3
Lithuania	10	0.1	0.05	0.05			
Luxembourg	6	0.15	0.15	0.15			
Malta ^h							
Netherlands	5	0.075	0.075	0.075			
Norway	5	0.1	0.05	0.05	1.5		3
Poland		0.3	0.3	0.3			
Portugal	5	0.05	0.05	0.05		2	3
Romania	10	0.1	0.05	0.05		2	3
Slovakia		0.1	0.1	0.1	2		2
Slovenia		0.15	0.15	0.15			
Spain	3	0.1	0.05	0.05		2	3
Sweden	5	0.1	0.05	0.05			
Switzerland	6	0.15	0.15	0.15	0.3	3	3
United Kingdom	4	0.1	0.1	0.1	2.4	2	0.8

^a K = 1 - Q = quartz percentage

^b Empoussiérage de référence (Ministère de l'Industrie (RGIE))

^c K = 1 - Q = quartz percentage

^d Lowest of the two values.

^e Valeur limite de moyenne d'exposition (Ministère du Travail)

^f Inhalable fraction

^g Germany has no OEL for quartz. Employers are obliged to minimize exposure as much as possible and to follow certain protective measures. ^h When needed, Maltese authorities refer to United Kingdom values for OELVs which do not exist in Maltese legislation.