

MATERIAL SAFETY DATA SHEET (EUROPEAN)

MSDS Number: 03/4

According to (EC) No 1907/2006 and (EC) No 1272/2008

Date of Issue: June 1998

Date of Last Revision: August 2011

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material/Product Name(s): MaxBoard, MaxForm LD, HD, MD.
Chemical family: This product contains: Refractory Ceramic Fibre (RCF) (Alumino Silicate Glass wools for high temperature use), fillers and binders.

Index Number: 650-017-00-8 of Annex VI

CAS Number: 142844-00-6

CAS Name: Refractories, fibres, alumino-silicate.

Registration Number: 01-2119458050-50-000-5

General Uses: Restricted to “professional users” , for application as thermal insulation, Heat shields and containment, gaskets and expansion joints, in walls, floor and sealing at temperatures from 1150°C to 1650°C in industrial and domestic furnaces, kilns, boilers and other processes equipment. For application in aerospace, automotive, refining and petrochemical industries, steel, aluminum and non ferrous metals industry and a passive Fire protection systems and Fire stops.

- **General use: Primary Use:** Manufacture of fibre (refers to the initial production of the fibre and is therefore not relevant to the downstream user, secondary and tertiary use are relevant to users).
- **Secondary Use:** Conversion in to wet and dry mixtures and articles (refer to section 8).
- **Tertiary Use:** Installation, removal (industrial and professional) / Maintenance and service life (industrial and professional) (refer to section 8).

Uses Advised Against: Spraying of the product.

Manufacturer/Supplier: Nutec Europe, S.A. de C.V.
Eitua Industrialdea, 71A
48240 Berriz, Vizcaya - Spain
Phone: +34 946 203 700
Fax: +34 946 827 060
<http://www.nuteceurope.com>

Emergency Contac Number: Tel: +34 946 203 700
Language: English
Opening hours: Only available during office hours.

SECTION 2. HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE/MIXTURE

2.1.1. CLASIFICACION ACORDING TO REGULATION (EC) No 1272/2008

Under the CLP-Regulation (classification, labeling and packaging of substances and mixtures) RCF/ASW has been classified as a 1B carcinogen.

2.1.2 CLASSIFICATION ACCORDING TO DIRECTIVE 67/548/EEC

RCF/ASW have been classified as a category 2 carcinogen (“substances which should be regarded as if they are carcinogenic to man”)

2.1.3 ADDITIONAL INFORMATION:

The International Agency for Research on Cancer (IARC) reaffirmed that group 2B (“possibly carcinogenic to humans”) remains the appropriate classification for RCF/ASW.

In accordance with 31st Adaptation to Technical Progress (ATP) of Directive 67/548/ECC as published 15th January 2009 the classification as “irritant” has been removed for all types of man made vitreous fibres (MMVFs).

2.2 LABELLING ELEMENTS

Component	Classification	Hazard pictogram & Symbol	R Phrase & H Statement
Refractory ceramic fibres (Alumino-silicate wools)	(EC)No. 1272/2008	GHS 08	H350i
	Directive 67/548/EEC	T	R49

Hazard pictogram:

GHS 08



Signal Word:

Danger

Hazard Statements:

May cause cancer by inhalation (H350i)

Precautionary statements:

Do not handle until all safety instructions have been read and understood. (P202)

Use personal protective equipment as required. (P281)

2.3 Other hazards which do not result in classification:

Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure.

These effects are usually temporary.

SECTION 3. COMPOSITION

Description: NUTEC Boards and special shapes are made of high temperature refractory ceramic fibers.

Material or Component	*CAS No.	%	Index number in CLP Annex VI
Refractory ceramic fibres (Alumino-silicate wools)	142844-00-6	30-90	650-017-00-8
Aluminosilicate	1302-93-8	0-12	N.A.
Silica, Colloidal	7631-86-9	5-60	N.A.
Starch	9005-25-8	2-10	N.A.

Chemical composition of Refractory Ceramic Fibres (RCF/ASW): SiO₂ 45-60% - Al₂O₃ 28-55%, ZrO₂<18%

None of the components are radioactive under the terms of European Directive Euratom 96/29

SECTION 4. FIRST AID MEASURES

Eye contact: In the case of eye contamination flush with water. Always have an eye bath within easy reach of personnel using insulation wool products and ensure that the bath is kept clean. Never rub the eye as this may cause damage. If in doubt seek medical advice.

Skin contact: In the case of skin irritation rinse affected areas with water and wash gently. Do not rub or scratch the affected area without water or this may increase the irritation.

Inhalation: Remove victim from adverse environment to fresh air and blown nose.

Ingestion: Ingestion is an unlikely route of exposure. If ingested in sufficient quantity and victim is conscious, give 1-2 glasses of water or milk. Never give anything by mouth to an unconscious person. Leave decision to induce vomiting to qualified medical personnel, since particles may be aspirated into the lungs. Seek immediate medical attention.

SECTION 5. FIRE FIGHTING MEASURES

NUTEC boards and shapes are non combustible products. However, binder may burn and produce gases and/or fumes. Packaging and surrounding materials may be combustible. Use extinguishing agents prescribed for fire fighting such combustible packaging and surrounding materials. Wear self-contained breathing apparatus when entering smoke filled areas.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Where abnormally high dust concentrations occur, provide workers with appropriate protective equipment as detailed in section 8.

- Restrict access to the area to a minimum number of workers required.
- Restore the situation to normal as quickly as possible.
- Prevent further dust dispersion for example by damping the materials.

Environmental precautions

- Prevent further dust dispersion for example by dampening the materials
- Do not flush spillage to drain.
- Check for local regulations, which may apply.

Method for clean up of material:

- Pick up large pieces and use a vacuum cleaner fitter with high efficiency filter (HEPA).
- Ensure that the area is wetted down before sweeping.
- Do not use compressed air for clean up.
- Do not allow to be wind blown.
- Do not flush spillage to drain and prevent from entering natural water courses.

For wastes disposal refer to section 13.

SECTION 7. HANDLING AND STORAGE**PRECAUTIONS FOR SAFE HANDLING**

- Handling can be a source of dust emission and therefore the processes should be designed to limit the amount of handling. Whenever possible, handling should be carried out under controlled conditions (i.e., using dust exhaust system).
- Regular good housekeeping will minimize secondary dust dispersal.

CONDITIONS FOR SAFE STORAGE

- Store in original packaging in dry area whilst awaiting use
- Always use sealed and visibly labeled containers.
- Avoid damaging containers.
- Reduce dust emission during unpacking.
- Emptied containers, which may contain debris, should be cleaned (see 6.3) before disposal or recycling.
- Recyclable cardboard and/or plastic films are recommended for packaging.

SPECIFIC END USE

- The main application of these products is as thermal insulation. Use of the products is restricted to “professional users”. Please refer to section 8 and the relevant exposure scenario.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION**CONTROL PARAMETERS**

Industrial hygiene standards and occupational exposure limits vary between countries and local jurisdictions. Check which exposure levels apply to your facility and comply with local regulations. If no regulatory dust or other standards apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection.

National Limit Values

Examples of national OELs (December 2010) are given in the table below. Additional references and/or updates can **be found on the following websites:**

http://www.dguv.de/ifa/en/gestis/limit_values

<http://osha.europa.eu/en/publications/reports/548OELs/view>

COUNTRY	OEL*
Austria	0.5 f/ml
Belgium	0.5 f/ml
Czech Republic	1.0 f/ml
Denmark	1.0 f/ml
Finland	0.2 f/ml
France***	0.1 f/ml
Germany***	No OEL but tolerated level :0.10 f/ml**
Italy	0.2 f/ml
Poland	0.5 f/ml
Spain	0.5 f/ml
Sweden	0.2 f/ml
The Netherlands	0.5 f/ml
UK***	1.0 f/ml

Note:

* 8-hr time weighted average concentrations of airborne respirable fibres measured using the conventional membrane filter method.

** In Germany, OEL (TKR) approach for CMR has been replaced by a combination of 2 new concepts: Assessment of risk and acceptance of risk. BekGS 910 gives a tolerated limit of 0.1 F/ml for RCF. TRGS 558 specifies however that a 2 fold uncertainty factor exists related to the quality of scientific data on which these

*** Source of OEL is detailed in section 15

The Scientific Committee on Occupational Exposure Limit Values (**SCOEL**) as set up by a Commission Decision (95/320/EC) have proposed an OEL for RCF/ASW of 0.3 f/ml.

Recommended Monitoring Programmes

France has a monitoring programme in line with test method reference number XP X43-269 dated March 2002, which is used to check for compliance with the OEL of 0.1 f/ml.

The UK follow MDHS 59 specific for MMVF: “Man-made mineral fibre - Airborne number concentration by phase-contrast light microscopy” and MDHS 14/3 “General methods for sampling and gravimetric analysis of respirable and inhalable dust”

Germany recommends following the rules as laid out in TRGS 402 and describes applicable sampling / analytical methods in BGI 505-31 and BGI 505-46.

WHO-EURO method: Determination of airborne fibre number concentrations; A recommended method, by phase-contrast optical microscopy (membrane filter method); World Health Organisation Geneva 1997 ISBN 92 4 154496 1.

DNEL/DMEL (DERIVED NO-EFFECT LEVEL/DERIVED MINIMAL EFFECT LEVEL)

The calculation of DMELs for fibres alone is not possible; a precautionary value is assigned based on fibrosis. An inhalation DMEL of 0.5 mg/m³ with an assessment factor of 25 can be calculated based on repeated dose toxicity, this value in the correct units would give a DMEL of 4 f/ml.

EXPOSURE CONTROLS

Appropriate Engineering Controls

Review your application(s) and assess situations with the potential for dust release.

- Where practical, enclose dust sources and provide dust extraction at source.
- Designate work areas and restrict access to informed and trained workers.
- Use operating procedures that will limit dust production and exposure of workers.
- Keep the workplace clean. Use a vacuum cleaner fitted with a HEPA filter; avoid using brooms and compressed air.

If necessary, consult an industrial hygienist to design workplace controls and practices.

The use of products specially tailored to your application(s) will help to control dust. Some products can be delivered ready for use to avoid further cutting or machining. Some could be pre-treated or packaged to minimise or avoid dust release during handling.

Consult your supplier for further details.

Table of Uses and Risk Management Measures (RMM):

Intended use	RMM - Hierarchy of Controls
<p>Secondary use – Conversion into wet and dry mixtures and articles.</p> <p>Process would include: Mixing forming operations, handling of RCF/ASW products, assembly of RCF/ASW containing products, machine and hand finishing of RCF/ASW products.</p> <p>Reference: ES 2</p>	<ul style="list-style-type: none"> - Where it is practical to do so, automatically feed RCF/ASW in to the process - Where practical to do so, segregate dry and wet processing - Enclose the process where practically possible. - Where practical to do so, segregate machine areas and restrict access to operators involved in the process. - Enclose Machines as far as practically possible. - Install LEV where possible, when machine finishing, handling, compressing and hand cutting to remove dust at source - Employ experienced personnel – trained in the correct use of fibrous products - PPE and RPE used for all dusty tasks - Provide vacuum cleaner connection point to central system where practical or use a portable HEPA vacuum - Regular clean up – using a wet scrubbing unit where practically possible and in general a HEPA vacuum should be used. - Dry brushing and use of compressed air should be prohibited - Waste materials to be contained at source, labelled and stored separately for disposal or recycling.
Intended use	RMM - Hierarchy of Controls
<p>Tertiary use - Maintenance and service life (Industrial or professional use)</p> <p>Process: Small scale repairs involving removal and installation of RCF/ASW products. Use of the product in an enclosed system, where there is</p>	<ul style="list-style-type: none"> - Use pre-cut, pre-sized pieces where practically possible. - Allow access only to trained (authorised) operators - Where practically possible, perform all hand cutting in a segregated area, on a down draft bench. - Clean up work area regularly during the shift using a HEPA equipped vacuum cleaner. - Prohibit use of dry brushing and compressed air cleaning. - Bag and seal waste immediately at source. - Use PPE and RPE appropriate to task. - Employ good hygiene practices.

occasional control access or no access. Reference: ES 3	
Intended use	RMM - Hierarchy of Controls
Tertiary use- Installation and removal (industrial or professional). Large scale removal and installation of RCF/ASW from Industrial processes. Large scale removal and installation by professionals. Reference: ES 4	<ul style="list-style-type: none"> - Where practically possible enclose or segregate the work area. - Allow only authorized personnel. - Pre-wet insulation prior to removal where practically possible. - Where practically possible use a water lance for removal or vacuum-truck. - Use down draft bench for hand cutting products. - Cover pre-cut section during transport and storage to prevent secondary exposure. - Where practically possible provide multiple vacuum hoses for convenient cleanup of spillage or use portable HEPA filtered vacuums. - Bag waste materials immediately at source - Prohibit use of dry brushing and or compressed air cleaning. - Experienced personnel only - Use appropriate PPE and RPE appropriate to expected concentrations

PERSONAL PROTECTIVE EQUIPMENT

Skin Protection: If working with virgin material, wear industrial leather gloves and work clothes, which are loose fitting at the neck and wrists. Soiled clothes should be cleaned to remove excess dust before being taken off (e.g. use vacuum cleaner, not compressed air). Each worker should be provided with two lockers in an appropriate changing and washing area. It is good hygiene practice to ensure work clothes are washed separately by the employer. Work clothes should not be taken home.

Eye Protection: As necessary, wear goggles or safety glasses with side shields

Respiratory Protection: For dust concentrations below the applicable exposure limit value, RPE is not required but FFP2 respirators may be used on a voluntary basis. For short term operations where excursions are less than ten times the limit value, use FFP3 respirators. In case of higher concentrations or where the concentration is not known, please seek advice from your company and/or your supplier.

You may also refer to the ECFIA code of practice available on the ECFIA's web site: www.ecfia.eu

INFORMATION AND TRAINING OF WORKERS

This should include:

- The applications involving RCF/ASW-containing products;
- The potential risk to health resulting from the exposure to fibrous dust;
- The requirements regarding smoking, eating and drinking at the workplace;
- The requirements for protective equipment and clothing;
- The good working practices to limit dust release;
- The proper use of protective equipment.

Environmental Exposure Controls

RCF/ASW is inorganic, inert and stable and it is not soluble in water (solubility <1mg/litre) and as such does not pose a detrimental effect on the environment.

Processes involving the manufacturing or use of RCF/ASW should be filtered to minimise fibre emissions to air.

Waste RCF/ASW should be stored in closed containers and placed in to deep landfills, giving therefore little opportunity for release.

General good practice for spills and waste is to prevent products from being wind blown, by covering and damping the waste materials. Contain spillages to prevent access to drain.

Refer to local, national or European applicable environmental standards for release to air water and soil.

For waste, refer to section 13

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: white/beige

Odour: None

Boiling point: N.A.

Melting point: >1732 °C

Flash point: N.A.

Flammability: N.A.

Auto inflammability: N.A.

Explosive properties: N.A.

Oxidizing properties: N.A.

Vapour pressure: N.A.

Relative density (Kg/m³): 256-480

Solubility: Slight

Partition coefficient: N.A.

Length weighted geometric mean diameter of fibre: 1.4 - 3 µm

OTHER SAFETY INFORMATION

These fibres are dense materials and so will settle rapidly from both air and liquid

SECTION 10. STABILITY AND REACTIVITY

REACTIVITY

RCF/ASW is stable and non reactive.

CHEMICAL STABILITY

RCF/ASW is inorganic, stable and inert

POSSIBILITY OF HAZARDOUS REACTIONS

None

CONDITIONS TO AVOID

Please refer to handling and storage advice in Section 7

INCOMPATIBLE MATERIALS

None

HAZARDOUS DECOMPOSITION PRODUCTS

Upon heating above 900°C for sustained periods, this amorphous material can begin to transform to mixtures of crystalline phases.

For further information please refer to Section 16.

Fumes: During first heating, oxidation products from the organic binder may be emitted in a temperature range from 180-600°C. It is recommended to ventilate the room until all gases and fumes have disappeared. Avoid exposure to high concentration of gas or fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

TOXICOKINETICS, METABOLISM AND DISTRIBUTION

Basic Toxicokinetic

Exposure is predominantly by inhalation or ingestion. Man made vitreous fibres of a similar size to RCF/ASW have not been shown to migrate from the lung and/or gut and do not become located in other parts of the body.

When compared to many naturally occurring minerals, RCF/ASW has a low ability to persist and accumulate in the body (half-life of long fibres (> 20 µm) in 3 week rat inhalation test is approx. 60 days).

Human Toxicological Data

In order to determine possible human health effects following RCF exposure, the University of Cincinnati has been conducting medical surveillance studies on RCF workers in the U.S. The Institute of Occupational Medicine (IOM) has conducted medical surveillance studies on RCF workers in European manufacturing facilities.

Pulmonary morbidity studies among production workers in Europe and USA have demonstrated an absence of interstitial fibrosis and no decrement in lung function associated with current exposures, but have indicated a reduction of lung capacity among smokers.

A statistically significant correlation between pleural plaques and cumulative RCF exposure was evidenced in the USA longitudinal study.

The USA mortality study did not show evidence of increased lung tumour development either in the lung parenchyma or in the pleura.

INFORMATION ON TOXICOLOGICAL EFFECTS

- Acute toxicity: short term inhalation
 - No data available: Short term tests have been undertaken to determine fibre (bio) solubility rather than toxicity; repeat dose inhalation tests have been undertaken to determine chronic toxicity and carcinogenicity.
- Acute toxicity: oral
 - No data available: Repeated dose studies have been carried out using gavage. No effect was found.
- Skin corrosion/irritation:
 - Not possible to obtain acute toxicity information due to the nature of the substance.
- Serious eye damage/irritation:
 - Not possible to obtain acute toxicity information due to the nature of the substance.

- Respiratory or skin sensitization:
 - No evidence from human epidemiological studies of any respiratory or skin sensitization potential.
- Germ cell mutagenicity:
 - Method: In vitro micronucleus test
 - Species: Hamster (CHO)
 - Dose: 1-35 mg/ml
 - Routes of administration: In suspension
 - Results: Negative
- Carcinogenicity

Method: Inhalation. Multi-dose

- Species: Rat,
- Dose: 3 mg/m³, 9 mg/m³ and 16 mg/m³
- Routes of administration: Nose only inhalation
- Results: Fibrosis just reached significant levels at 16 and 9 mg/m³ but not at 3 mg/m³. None of the parenchymal tumour incidences were higher than the historical control values for this strain of animal.

Method: Inhalation. Single dose

- Species: Rat
- Dose: 30 mg/m³
- Routes of administration: Nose only inhalation
- Results: This study was designed to test the chronic toxicity and carcinogenicity of RCF at extreme exposures. Tumour incidence (incl. mesothelioma) was raised at this dose level. The presence of overload conditions (only detected after the experiment was completed), whereby the delivered dose exceeded the clearance capability of the lung, makes meaningful conclusions in terms of hazard and risk assessment difficult.

Method: Inhalation. Single dose

- Species: Hamster
- Dose: 30 mg/m³
- Routes of administration: Nose only inhalation
- Results: This low quality study in hamsters (no justification for exposure concentration used and pre existing and concurrent infections in the test animals) produced mesothelial lesions of uncertain significance. Subsequent studies in hamsters with glass fibres indicated that the lung burdens of RCF in this experiment were between 5 and 10 times more than that needed to produce overload, and the results are therefore difficult to interpret.

There are reports of injection studies with some similar materials. While some intraperitoneal injection (IP) studies reported the development of tumours in rats, the relationship of these results to classification remains controversial.

- Reproductive toxicity:

Method: Gavage

- Species: Rat
- Dose: 250mg/kg/day
- Routes of administration: Oral
- Results: No effects were seen in an OECD 421 screening study. There are no reports of any reproductive toxic effects of mineral fibres. Exposure to these fibres is via inhalation and effects

seen are in the lung. Clearance of fibres is via the gut and the faeces, so exposure of the reproductive organs is extremely unlikely.

- STOT-Single exposure; NA
- STOT-Repeated exposure; NA
- Aspiration hazard: NA

Irritant Properties

Negative results have been obtained in animal studies (EU method B4) for skin irritation. Inhalation exposures using the nose only route produce simultaneous heavy exposures to the eyes, but no reports of excess eye irritation exist. Animals exposed by inhalation similarly show no evidence of respiratory tract irritation.

Human data confirm that only mechanical irritation, resulting in itching, occurs in humans. Screening at manufacturers' plants in the UK has failed to show any human cases of skin conditions related to fibre exposure.

SECTION 12. ECOLOGICAL INFORMATION

These products are inert materials that remain stable overtime.

These products are insoluble in the natural environment and are chemically identical to inorganic compounds found in the soil and sediment.

RCF/ASW is inorganic and a dense material, which will settle rapidly from both air and liquid.

No adverse effects of this material on the environment are anticipated.

SECTION 13. DISPOSAL CONSIDERATION

WASTE TREATMENT

Waste containing > 0.1% RCF/ASW is categorised as a stable non-reactive hazardous waste (please refer to the European List Decision N° 2000/532/CE as modified), which can generally be disposed of at landfill sites licensed for this purpose

Unless wetted, such a waste is normally dusty and so should be properly sealed in clearly labelled containers for disposal. At some authorised disposal sites, dusty wastes may be treated differently in order to ensure they are dealt with promptly to avoid them being windblown.

Please refer to the European list (Decision no 2000/532/CE as modified) to identify your appropriate European Waste Code (EWC) and ensure national and or regional regulation are complied with.

ADDITIONAL INFORMATION

When disposing of waste and assigning European Waste Code (EWC) any possible contamination during use will need to be considered and expert guidance sought as necessary.

SECTION 14. TRANSPORT INFORMATION

Not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG, ADN).

Ensure that dust is not windblown during transportation.

Definitions:

ADR	Transport by road, Council Directive 94/55/EC
IMDG	Regulations relating to transport by sea
RID	Transport by rail, Council Directive 96/49/EC
ICAO/IATA	Regulations relating to transport by air
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

SECTION 15. REGULATORY INFORMATION**15.1 SAFETY, HEALTH AND ENVIRONMENT REGULATIONS/LEGISLATION SPECIFIC FOR THE SUBSTANCES OR MIXTURES****EU regulations:**

- Council Directive 67/548/EEC “on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances as modified and adapted to the technical progress” (OJEC L 196 of 16 August 1967, p.1 and its modifications and adaptations to technical progress).
- Council Directive 1999/45/EC of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labeling of dangerous preparations
- Regulation (EC) No 1907/2006 dated 18th December 2006 on Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
- Regulation (EC) No 1272/2008 dated 20th January 2009 on classification, labeling and packaging of substances and mixtures (OJ L 353)
- Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC (OJEC of 13 December 1997, L 343).
- Commission regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labeling and packaging of substances and mixtures.
- The 1st Adaptation to Technical Progress (ATP) to Regulation (EC) No 1272/2008 enters into force on 25 September 2009. It transfers the 30th and 31st ATPs of Directive 67/548/EEC to the Regulation (EC) No 1272/2008.

Protection of Workers

Shall be in accordance with several European Directives as amended and their implementations by the Member States:

- Council Directive 89/391/EEC dated 12 June 1989 “on the introduction of measures to encourage improvement in the safety and health of workers at work (OJEC (Official Journal of the European Community) L 183 of 29 June 1989, p.1).
- Council Directive 98/24/EC dated 7 April 1997 “on the protection of workers from the risks related to chemical agents at work” (OJEC L 131 of 5 May 1998, p.11).
- Council Directive 2004/37/EC of 29 April 2004 on the protection of workers from risks related to exposure to carcinogens mutagens and reprotoxics at work (OJEC L 158 of 30 April 2004).

Other EU Regulations:

Member states are in charge of implementing European directives into their own national regulation within a period of time normally given in the directive. Member States may impose more stringent requirements. Please always refer to national regulations.

15.2 CHEMICAL SAFETY ASSESSMENT

A Chemical Safety Assessment has been carried out for RCF/ASW and CSR can be provided on request.

SECTION 16. OTHER INFORMATION

USEFUL REFERENCES (the directives which are cited must be considered in their amended version)

- Hazards from the use of Refractory Ceramic Fibre. Health and Safety Executive: Information document, HSE 267 (1998).
- Working with High Temperature Insulation wools 2006;
- ECFIA; Code of Practice.
- Maxim LD et al (1998). CARE – A European programme for monitoring and reducing Refractory Ceramic Fibre dust at the workplace initial results; Gefahrstoffe – Reinhaltung der Luft, 58:3,97-103.
- Recognition and control of exposure to RCF, ECFIA, April 2009
- TRGS 619 – Technical Rules for Hazardous substances: Substitution Products for Aluminium silicate wools.

Precautionary measures to be taken after service and upon removal:

Additional information and precautions to be considered upon removal of after service material

As produced, all Refractory Ceramic Fibres are vitreous (glassy) materials which, upon continued exposure to elevated temperatures (above 900°C), may devitrify. The occurrence and extent of crystalline phase formation is dependent on the duration and temperature of exposure, fibre chemistry and/or the presence of fluxing agents. The presence of crystalline phases can be confirmed only through laboratory analysis of the "hot-face" fibre.

IARC's evaluation of crystalline silica states "Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)" and additionally mentioned "in making the overall evaluation, the Working Group noted that carcinogenicity in humans was not detected in all industrial circumstances studied..."

As only a thin layer of the insulation (hot face side) is exposed to high temperatures, respirable dust generated during removal operations does not contain detectable levels of crystalline silica (CS).

In applications where the material is heat soaked, duration of heat exposure is normally short and a significant devitrification allowing CS to build up does not occur. This is the case for waste mould casting for instance.

Toxicological evaluation of the effect of the presence of CS in artificially heated RCF/ASW material has not shown any increased toxicity in vitro.

The lack of toxicological effects may be explained by the following factors ;

Increased brittleness of fibres after service life, favours fast fibre translocation through macrophage.

Micro crystals, including crystalline silica, are embedded in the glass structure of the fibre and are therefore not biologically available.

The IARC evaluation as provided in Monograph 68 is not relevant as CS is not biologically available in after-service RCF/ASW.

High concentrations of fibres and other dusts may be generated when after-service products are mechanically disturbed during operations such as wrecking. Therefore ECFIA recommends:

- a) control measures are taken to reduce dust emissions;
- b) all personnel directly involved wear an appropriate respirator to minimise exposure; and
- c) Compliance with local regulatory limits.

CARE PROGRAMME (Controlled and Reduced Exposure)

ECFIA, representing the high temperature insulation wool (HTIW) industry, has undertaken an extensive industrial hygiene programme to provide assistance to the users of all products containing HTIW.

The objectives are twofold:

To monitor workplace dust concentrations at both manufacturers' and customers' premises.

To document manufacturing and use of RCF products from an industrial hygiene perspective in order to establish appropriate recommendations to reduce exposures.

The initial results of the programme have been published. If you wish to participate in the CARE programme, contact ECFIA or your supplier.

Spraying: ECFIA recommends that this fibre should not be used for spraying.

NOTE: The directives and subsequent regulations detailed in this Safety Data Sheet are only applicable to the European Union (EU) Countries and not to countries outside of the EU.

Websites

European Industry Association Representing HTIW (ECFIA): 3, Rue du Colonel Moll, 75017 Paris

Tel. +33 (0) 6 31 48 74 26 www.ecfia.eu

Or Deutsche KeramikFaser-Gesellschaft e.V' website: (<http://www.dkfg.de/>)

Revision Summary

General Update of SDS to comply with REACH Regulation, changes to sections 1-16, Logo and products name changes.

NOTICE:

The information presented here in is based on data considered to be accurate as of the date of preparation of this Safety Data Sheet. However, no warranty or representation, express or implied, is made as to the accuracy or completeness of the foregoing data and safety information, nor is any authorisation given or implied to practice any patented invention without a licence. In addition, no responsibility can be assumed by the vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

Last Revision: February 2014