



SoliBoard X Grade

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Section 1:**1.1 Identification of product**

| | |
|-----------------|---|
| Product form | Article |
| Product name | SoliBoard X Grade |
| Type of product | The above-mentioned products contain Refractory Ceramic Fibres (RCF) Alumino-silicate wools (ASW) or a combination (RCF-ASW) Index Number: 650-017-00-8 Annex VI CAS number: 142844-00-6 Registration number: 01-2119458050-50 |
| Productgroup | High temperature insulation material |

1.2 Use of the product

Use of the products is restricted to professional users for application as thermal insulation, heat shields, heat containment, gaskets and expansion joints in industrial furnaces, ovens, kilns, boilers and other proces equipment and in the aerospace, automotive and appliance industries. Products are not intended for direct sale to the general public.

Users advised against spraying of the product.

(Please refer to specific technical data sheet for more information)

1.3 Identification of the company

Vulcor Insulation BV
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sales.support@vulcor.com
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Section 2. Hazard identification**2.1.1 Classification of the substance | mixture**


Classification according to regulation (EC) No 1272|2008:

Under the classification, labelling and packaging regulations (CL) 1272|2008 EEC RCF|ASW has been classified as a 1B carcinogen.

2.1.2 Additional information

The International Agency for Research of Cancer (IARC) reaffirmed in 2001 that group 2B ('possibly carcinogenic to humans') remains the appropriate classification for RCF|ASW. In accordance with 1st adaption to Technical Progress of Regulation (EC) No 1272|2008 as published 10th August 2009, the classification as 'irritant' has been removed for all types of manmade vitreous fibres (MMVFs)

2.2 Labelling elements

| Component | Classification | Hazard pictogram&symbol | H statement |
|--|--------------------|--|-------------|
| Refractory Ceramic Fibres (Alumino-silicate-wools) | (EC) No. 1272 2008 | GHS 08  | H350i |

| | | |
|--------------------------|--|-------|
| Hazard Pictogram | GHS 08 | |
| Signal word | Danger | |
| Hazard Statements | May cause cancer by inhalation | H350i |
| Precautionary Statements | Do not handel 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 the skin, eyes and upper respiratory system may result from exposure. These effects are mostly temporary.

Section 3. Composition & information on ingredients

3.1 Description

These products in the form of Board are made of refractory ceramic fibres wool.

Refractories, fibres, aluminosilicate

| Component | % by weight | CAS no | REACH registration number | Hazard classification acc. To CLP |
|--|-------------|----------------|---------------------------|-----------------------------------|
| Refractory Ceramics Fibre (Alumino-silicate wools) | 50-90% | 14244-00-6 | 01-2119458050-50 | Carc 1B (H350i) |
| Organic Binder | 3-8% | Not applicable | Not yet available | Not classified as hazardous |
| Inorganic Binder | 5-15% | Not applicable | Not yet available | Not classified as hazardous |

Composition: CAS definition: chemical composition fo Refractory Ceramic Fibres (RCF | ASW)

SiO₂: 45-80%, Al₂O₃: 28-55%, ZrO₂ < 18%

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

For updated product- and material safety datasheets, please visit our website: www.vulcor.com

Section 4. First Aid Measures

4.1 Description of first aid measurements

Skin

Handling of this material may generate mild mechanical irritation. Wash it of gently with water. Don't rub or scratch the exposed skin.

Eyes

After eye contact: flush with water, or better with eye bath. Don't rub. Seek medical help if problem persists.

Nose & Throat

If irritated, move to dust free area. Drink water and blow the nose. Seek medical help if problem persists.

First Aid additional information

If symptoms persist, seek medical help

4.2 Most important symptoms and effects

No symptoms of effects expected either acute or delayed

4.3 Indication of any immediate medical attention and special treatment required

No special treatment required, if exposure occurs: wash exposed areas to avoid irritation

Section 5. Fire fighting measures

5.1 Extinguishing media

Use extinguishing agent suitable for surrounding combustible materials.

5.2 Special hazards arising from the substance or mixture

Non combustible products

5.3 Advice for firefighters

Packing and surrounding materials may be combustible

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

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

Restrict access to the area to a minimum number of workers required.

Restore the situation to normal as quickly as possible.

6.2 Environmental precautions

Prevent further dust dispersion, for example by damping the materials. Do not flush spillage to drain and prevent from entering natural watercourses. Check for local regulations, which may apply.

6.3 Methods and materials for containment and cleaning

Pick up large pieces and use a vacuum cleaner for small parts and dust.

If brushes are needed, ensure the area is wetted down first. Do not use compressed air for clean up. Do not allow to become windblown.

6.4 Reference to other sections

For further information, please read sections 7 & 8.

Section 7. Handling and storage

7.1 Precautions for safe handling

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

7.2 Conditions of safe storage

Store in original packing in a dry area. Always use sealed and clearly labelled containers. Avoid dampening containers. Reduce dust emission during unpacking. Emptied containers, which may contain debris, should be cleaned before disposal or recycling. Recyclable cardboard and/or plastic films are recommended for packaging.

7.3 Specific end use

The main application of these products: thermal insulation. Use of the products is restricted to professionals Please refer to your supplier (Vulcor Insulation)

Section 8. Risk management measures | exposure controls | personal protection

8.1 Control parameters.

Industrial hygiene standards and occupational exposure limits vary between countries and local law. Check the exposure levels in your facility and comply with local regulators. If no regulatory dust or standard apply, a qualified industrial hygienist can assist with a specific workplace evaluation including recommendations for respiratory protection Examples of exposure limits applying (in November 2014) in different countries are given below

| Country | MMVF | Source |
|----------------|------------------------|---|
| Austria | 1 f/ml | Grenzwerteverordnung |
| Belgium | 10 mg/m ³ | Valeurs limites d'exposition professionnelle - VLEP & Grenswaarden voor beroepsmatige blootstelling - |
| Czech Republic | 1 f/ml | |
| Denmark | 1 f/ml | Graensevaerdier for stoffer og materialer |
| Finland | 1 f/ml | Finnish Ministry of Social Affairs and Health |
| France | 1 f/ml | INRS |
| Germany | 1.25 mg/m ³ | TRGS900 |
| Hungary | 1 f/ml | Eüm-SZCSM rendelet |
| Ireland | 1 f/ml | HAS-Eire |
| Italy | 1 f/ml | |
| Luxembourg | 1 f/ml | Règlement grand-ducal du 30 juillet 2002 |
| Netherlands | 1 f/ml | Social and Economic Council of the Netherlands |
| Norway | 1 f/ml | Veiledning om administrative normer for forurensning i arbeidsatmosfaere |
| Poland | 2 f/ml | Dziennik Ustaw 2010 |
| Spain | 1 f/ml | INSHT |
| Sweden | 1 f/ml | Hygieniska gränsvärden och åtgärder mot luftöroreningar |
| Switzerland | 1 f/ml | SUVA |
| UK | 2 f/ml | EH40/2005 |
| GCC | 1 f/ml | Abu Dahbi OSHAD |
| South Africa | 5 mg/m ³ | Regulation 1179 - Hazardous Chemical Substances 2007 |

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

SCOEL (Scientific Committee on Occupational Exposure Limits) published a report in 2012 using all available data to set an OEL for RCF, because this substance is a fibre and its hazard is related to inhalation, this OEL is more appropriate than a modelled DNEL.

The report concludes as follows: Assuming a 45 years exposure, the average cumulative exposures of 147.9 and 184.8 fmo/ml, result in an average fibre contraction of 0.27 and 0.34 f/ml. Considering these values as no observed adverse effect levels SCOEL proposes an OEL of 0.3 f/ml.

Information on monitoring procedures

UK:

MDHS 59 specific for MMVF: 'man made mineral fibre - Airborne number concentration by phase-contrast light microscopy' and MDHS 14/4 'general methods for sampling and gravimetric analysis of respirable and inhalable dust

NIOSH

NIOSH 0500 'particulates not otherwise regulate, total

NIOSH 0600 'particulates not otherwise regulate, respirable

NIOSH 7400: 'asbestos and other fibres by PCM'

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Review your applications in order to identify potential sources of dust release and exposure. When 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 with a HEPA filter, avoid using brooms and never use compressed air for cleaning.

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 |
|---|--|
| Secondary use - Conversion into wet and dry mixtures and articles. Process would include: mixing and forming operations, handling of RCF/ASW products, assembly of RCF/ASW containing products, machine and hand finishing of RCF/ASW products Reference ES2 | Where its practical to do so, automatically reed RCF/ASW in to the process |
| | Where its practical to do so, segregated 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 of 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 |
| Tertiary use - maintenance and service life (industrial or professional use) Process: small scale repairs involving removal and installation of RCF/ASW products. Use of the product in an enclosed system, where there is occasional control access or no access. Reference ES 3 | Use pre-cut, pre-sized pieces where practically possible |
| | Allow access to only 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 wast immediately at source |
| | Use PPE and RPE appropriate to task |
| Employ good hygiene practices | |
| 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 of RCF/ASW from industrial processes by professionals Reference ES 4 | Where practically possible enclose or segregate the work area |
| | Allow only authorised personnel |
| | Pre-wet insulations prior to removal where practically is possible |
| | Where practically possible use 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 compressed air cleaning |
| | Experienced personnel only |
| Use appropriate PPE and RPE appropriate to expected concentrations | |

8.2.2 Personal Protective Equipment

Skin protection:

Wear industrial leather gloves and work clothes, which are loose fitted at the neck and wrists. Soiled clothes should be cleaned to remove excess fibres before being taken off (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 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 10 times the limit value use FFP3 respirators

In case of higher concentrations, or where the concentration is unknown, please seek advice from your supplier.

You may also refer to the ECFIA code of practice, available on www.ecfia.eu

Information and training workers should include:

- the applications involving RCF/ASW 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 equipments and clothing
- the good working practices to limit dust release
- the proper use of protective equipment

8.2.3 Environmental exposure controls

RCF/ASW is inorganic, inert and stable and it is not soluble in water (<1mg/litre) and as such doesn't pose a detrimental effect 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 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 windblown, 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.

Technical datasheet:

For more information on products, please look for the relevant technical datasheets on: www.vulcor.com

Section 9. Physical and chemical properties

| | |
|--|--|
| Information on basic physical and chemical properties: | N.A. |
| Appearance: | White fibre -blanket paper bulk log bloc |
| Odour: | None |
| Odour threshold: | N.A. |
| pH | N.A. |
| Melting point freezing point: | > 1650°C |
| Initial boiling point and boiling point range: | N.A. |
| Flash point: | N.A. |
| Evaporation rate: | N.A. |
| Flammability (solid, gas) | N.A. |
| Upper lower flammability or explosive limits: | N.A. |
| Vapour pressure: | N.A. |
| Vapour density: | N.A. |
| Relative density: | 50-240kg/m ³ |
| Solubility(ies): | Less than 1mg/l |
| Partition co-efficient: n-octanol water: | N.A. |
| Auto-ignation temperature: | N.A. |
| Decomposition temperature: | N.A. |
| Viscosity: | N.A. |
| Explosive properties: | N.A. |
| Oxidising properties: | N.A. |

Section 10. Stability and reactivity

10.1 Reactivity

The material is stable and non reactive.

10.2 Chemical stability

RCF/ASW is inorganic, stable and inert

10.3 Possibility of hazardous reactions

None

10.4 Conditions to avoid

Please refer to the handling and storage advice in section 7.

10.5 Incompatible materials

None

10.6 Hazardous decomposition products

Upon heating above 900°C for sustained periods, this amorphous material begins to transform mixtures of

crystalline phases. For further information please refer to section 16.

Section 11. Toxicological information | toxicokinetics | metabolism | distribution

11.1.1 Basic toxicokinetics

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

12.1.2 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 USA. The Institute of Occupational Medicine (IOM) has conducted medical surveillance studies on RCF working in European manufacturing facilities.

Pulmonary morbidity studies among production workers in Europe and USA have demonstrated an absence of interstitial fibrosis. In the European study a reduction of lung capacity among smokers has been identified, however, based on the latest results in the USA study this reduction is no longer statistically significant.

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 on increased lung tumour development either in the lung parenchyma or in pleura.

11.1. 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 a chemical irritant according to test method OECD no 404

Serious eye damage | irritation:

Not possible to obtain acute toxicity information due to the morphology and chemical inertness of the substance

Respiratory or skin sensitisation:

No evidence from human epidemiological studies of any respiratory or skin sensitisation 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 | 3mg/m ³ and 16mg/m ³ |
| Routes of administration | nose, only inhalation |
| Results | Fibrosis just reached significant levels at 16 and 9mg/m ³ . None of the parenchymal tumour incidences were higher than the historical control values for the strain of animal. |

| | |
|--------------------------|---|
| Method | inhalation, single dose |
| Species | Rat |
| Dose | 30mg/m ³ |
| Routes of administration | nose only inhalation |
| Results | Rats were exposed to a single concentration of 200 WHO fibres/ml specially prepared RCF for 24 months. High incidence of exposure related pulmonary neoplasms were observed. A small number of mesotheliomas were observed in each of the fibre exposed groups (Mast et al 1995a) |

| | |
|--------------------------|--|
| Method | Single dose |
| Species | Hamster |
| Dose | 30mg/m ³ |
| Routes of administration | nose only inhalation |
| Results | Hamsters were exposed to a single concentration of 260 WHO fibres/ml specially prepared RCF for 18 months and developed lung fibrosis, a significant number of pleural mesotheliomas (42/102) but no primary lung tumours (McConnell et al 1995) |

| | |
|--------|------------------------|
| Method | Inhalation single dose |
|--------|------------------------|

| | |
|--------------------------|---|
| Species | Rat |
| Dose | RCF1: 130F/ml and 50 mg/m ³ (25% of non fibrous particles) RCF1a: 125F/ml and 26 mg/m ³ (2% of non fibrous particles) |
| Routes of administration | nose only inhalation |
| Results | Rats were exposed to RCF1 and RCF1a for 3 weeks. The objective of the study was to compare lung retention and biological effects of the original RCF1 compared to the RCF1a. The main difference for these 2 samples was the non fibrous particle content of respectively 25% versus 2%. The post treatment observation was 12 months. Alveolar clearance was barely retarded after RCF1a exposure, however, a severe retardation of clearance was observed. (Bellmann et al 2001) (Source publication) |

After intraperitoneal injection of ceramic fibres into rats in 3 experiments (Smith et al 1987, Pott et al 1987, Davis et al 1984) mesotheliomas were found in the abdominal cavity in 2 studies, while the 3rd report (Pott) had incomplete histopathology. Only a few mesotheliomas were found in the abdominal cavity of hamsters after intraperitoneal injection in one experiment (Smith). However, the ceramic fibres tested were of relatively large diameter. When rats and hamsters were exposed via intraperitoneal injection, tumour incidence was related to fibre length and dose. (From SCOEL publication (EU scientific Committee on Occupational Exposure Limits) publication SCOEL/SUM/165, October 2010)

Reproductive toxicity:

| | |
|--------------------------|--|
| Method | Gavage |
| Species | Rat |
| Dose | 250 mg/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 on 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 N.A.

STOT-repeated exposure N.A.

Aspiration hazard N.A.

Experimental Studies for Mineral Wools:

Animal inhalation studies on mineral wools showed neither pulmonary fibrosis nor lung cancer nor mesothelioma. Intertracheal and intraperitoneal injection studies did not show any disease except those involving selected fine glass fibres for special uses or experimental rock wools.

11.2 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 exposure 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: ecotoxicity (aquatic and terrestrial where available)**12.1 Toxicity**

These products are insoluble materials that remain stable overtime and are chemically identical to inorganic compounds found in the soil and sediment: they remain inert in a natural environment. No adverse effects of this material on the environment are anticipated.

12.2 Persistence and degradability

Not established

12.3 Bioaccumulative potential

Not established

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT)

This substance is not considered to be very persistent and very bioaccumulative (vPvB)

12.6 Other adverse effects.

No additional information available

Section 13. Disposal considerations**13.1 Waste treatment methods**

Waste containing >0.1% RCF/ASW is categorized as a stable non-reactive hazardous waste according to Commission Decision 2000/6 3/EC, which can generally be disposed of at landfill sites licensed for this purpose.

Unless wetted, such as waste is normally dusty and so should be properly sealed in containers for disposal. At some authorised disposal sites, dusty waste 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.

Section 14. Transport information

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Not applicable

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 substances or mixtures

EU regulations:

1. Regulation (EC) No 1907/2006 dated 18th December 2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
2. Regulation (EC) No 1272/2008 dated 20th January 2009 on classification, labelling and packaging of substances and mixtures (OJ L353) Annex of Regulation (EU) 2015/830
3. 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, labelling and packaging of substances and mixtures.
4. The 1st Adaptation to Technical Progress (ATP) to Regulation (EC) No 1272/2008 enters into force on 25th of September 2009.
5. Directive 2004/37/EC dated 29th April 2004 on Carcinogens and Mutagens Directive (CMD)

Integration of RCF/ASW in to ANNEXE XV of the REACH Regulation:

RCF are classified as a carcinogenic substance CLP 18 (see section 15 above). On the 13th of January 2010 ECHA updated the candidate list for authorisation (Annexe XV of the REACH regulation) and added 14 new substances in this list including aluminosilicate refractory ceramic fibres and zirconia aluminosilicate refractory ceramic fibres.

As a consequence, EU or EEA (European Economical Area) suppliers of articles which contain aluminosilicate refractory ceramic fibres and zirconia aluminosilicate refractory ceramic fibres in a concentration above 0,1% (w/w) have to provide sufficient information, available to them, to their customers or upon request to a customer within 45 days of the receipt of the request. This information must ensure safe use of the article and as minimum contains the name of the substance.

Restriction on Marketing of RCF/ASW

Marketing and use of RCF/ASW is controlled by Directive 76/69/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations as modified (21st amending, Directive 2001/41/EC, 19th June 2001) and is restricted to professional use only.

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

16.1 Usefull references:

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

1. Hazards from the use of RCF. Health and Safety Executive: information document HSE 267 (1998)
2. Working with High Temperature Insulation Wools 2006
3. ECFIA: code of practice
4. Maxim LD et al (1998). CARE - A European programme for monitoring and reducing RCF dust at the workplace initial results: Gefahrstoffe - Reinhaltung der Luft 58:3,97-103
5. Recognition and control of exposure to RCF. ECFIA April 2009

16.2 Precautionary measures

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

As produced, all RCF 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 dependant 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 temperature, respirable dust generated during removal operations does not contain detectable levels of crystalline silica (CS)

In applications where the material is heat soaked, duration to 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 IARC evaluations of fibres and other dusts may be generated when after-service products are mechanically disturbed during operation such as wrecking. ECFIA recommends:

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

Uses advised against:

ECFIA recommends that this fibre should not be used for spraying

Website:

www.vulcor.com

www.ECFIA.eu

Other information:

The information presented herein is based on data considered to be accurate as of the date of preparation on this MSDS. However safe as provided by law, no warranty or representation, express or implied, is made as to the accuracy or completeness of this data and safety information, nor is any authorisation given or implied to practice any patented invention without 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 (however, this shall not act to restrict the vendor's potential liability for negligence or under statute).