MATERIAL SAFETY DATA SHEET
(EUROPEAN)

MSDS Number: 08/3

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SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Material/Product Name(s): NUTEC Ceramic Fibre Paper.
Chemical family: Vitreous Alumino Silicate Fibre.
General use: Restricted to professional users for application as thermal insulation, Heat shields, asbestos paper replacement, investment cast mold wrap insulation, onetime consumable insulating applications, backup lining for metal troughs, hot top lining, applications where low binder content is required, thermal, electrical insulation and upgrade for fibre glass paper and blanket products and expansion joints at temperatures up to 1260ºC.

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. COMPOSITION

Description: Nutec Ceramic Fibre Paper are made of acrylic bonded refractory ceramic fibres.

INGREDIENT NAME	*CAS NUMBER	%	Symbol	R- Phrases
Acrylic latex	N.A.	0 - 12	N.A.	N.A.
Ceramic fiber	142844-00-6	88 - 100	T, Xi	R49, R38

Typical compositions by weight % are as follows: $Si0_2$: 53% and Al_2O_3 47%

*Chemical Abstract Service Number (CAS)
None of the components are radioactive under the terms of the European directive Eurotom 96/29.

SECTION 3. HAZARDS IDENTIFICATION

3.1 CLASSIFICATION OF THE SUBSTANCE/MIXTURE

3.1.1. CLASIFICATION ACORDING TO REGULATION (EC) No 1272/2008

Under the Classification, Labelling and Packaging regulations (CLP) 1272/2008 EEC RCF/ASW has been classified as a 1B carcinogen.

3.1.2 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")

3.1.3 ADDITIONAL INFORMATION:

The International Agency for Research on Cancer (IARC) reaffirmed in 2001 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).

3.2 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)

3.3 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 4. FIRST AID MEASURES

4.1 Eye contact: In the case of eye contamination flush with water. Always have an eye bath within easy reach. Never rub the eye as this may cause damage. If in doubt seek medical advice.

4.2 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.

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

4.4 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 Paper is a non combustible product. However, virgin product binder may burn and produce gases and/or fumes. Use extinguishing agents prescribed for fire fighting surrounding combustible materials.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

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.

6.2 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.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN UP

- Pick up large pieces and use a vacuum cleaner fitted with a high efficiency filter (HEPA)
- If brushing is used, ensure that the area is wetted down first.
- Do not use compressed air for clean up.
- Do not allow to be windblown

SECTION 7. HANDLING AND STORAGE

7.1 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.

7.2 CONDITIONS FOR SAFE STORAGE

- Store in original packaging in dry area.
- Always use sealed and visibly labeled containers.
- Avoid damaging 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 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. RISK MANAGEMENT MEASURES/EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 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.

8.1.1 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 the OEL (TRK) 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 risk levels have been calculated. This implies that the tolerated risk level ranges from 0.05 F/ml to 0.20 F/ml.

*** Source of OEL is detailed in section 15

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

Due to overload which occurred in the rat multidose inhalation study described in section 11, the calculation of DMELs based on carcinogenicity is not possible; a precautionary value is therefore 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.

8.1.2 Recommended Monitoring Programmes

France: Phase contrast optical microscopy test method reference number XP X43-269 dated March 2002,

United Kingdom: 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 TRGS 402 and description of 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.

8.2 EXPOSURE CONTROLS

8.2.1 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 for clean up.

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 forming operations, handling of RCF/ASW products, assembly of RCF/ASW containing products, machine and hand finishing of RCF/ASW products. Reference: ES 2	- 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**
Tertiary use - Maintenance and service life (Industrial or professional use)	- 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.

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	- 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.
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**	- 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

8.2.2 Personal Protective Equipment

Skin Protection:

Skin Protection

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 should be provided for use on a voluntary basis.

For short term operations where excursions are less than ten times the applicable 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.

8.2.3 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

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance: white paper

Odour: None

Boiling point: N.A.

Melting point: >1650 °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/m^3): 120-220

Solubility: Slight

Partition coefficient: N.A.

9.2 OTHER SAFETY INFORMATION

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

SECTION 10. STABILITY AND REACTIVITY

10.1 REACTIVITY
RCF/ASW 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 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 can begin to transform to mixtures of crystalline phases. For further information please refer to Section 16.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 TOXICOKINETICS, METABOLISM AND DISTRIBUTION

11.1.1 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.

11.1.2 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 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 U.S.A. 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 U.S.A. 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 U.S.A. mortality study did not show evidence of increased lung tumour development either in the lung parenchyma or in the pleura.

11.2 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 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/m^3, 9 mg/m^3 and 16 mg/m^3
- Routes of administration: Nose only inhalation
- Results: Fibrosis just reached significant levels at 16 and 9 mg/m^3 but not at 3 mg/m^3. 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/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 (bronchoalveolar adenomas and carcinomas) were observed. A small number of mesotheliomas were observed in each of the fibre exposure groups (Mast et al 1995a).

Method: Inhalation. Single dose

- Species: Hamster
- Dose: 30 mg/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: 130 F/ml and 50 mg/m^3 (25% of non fibrous particles)
- RCF1a: 125 F/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 RCF1a. The main difference of 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. After RCF1 exposure however, a severe retardation of clearance was observed. (Bellmann et al 2001) (Source: publication)

  After intraperitoneal injection of ceramic fibres into rats in three experiments (Smith et al 1987, Pott et al 1987, Davis et al 1984), mesotheliomas were found in the abdominal cavity 6 in two studies, while the third report (Pott et al 1987) had incomplete histopathology. Only a few mesotheliomas were found in the abdominal cavity of hamsters after intraperitoneal injection in one experiment (Smith et al 1987). 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 (Smith et al 1987, Pott et al 1987, Miller et al 1999, Pott et al 1989).
  (From SCOEL publication (EU Scientific Committee on Occupational Exposure Limits) publication SCOEL/SUM/165, October 2010).

- *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

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

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, which remain stable over time.
No adverse ecological effects of this material on the environment are anticipated.

SECTION 13. DISPOSAL INFORMATION

Waste containing more than 0.1% of RCF is categorized as a hazardous waste, which can generally be disposed of at a landfill, which can be licensed for this purpose. Please refer to the European List (Decision N° 2000/532/CE as modified) to identify your appropriate waste number, and insure national and/or regional regulation are complied with. Taking into account any possible contamination during use, expert guidance should be sought.

Unless wetted, such a waste is normally dusty and so should be properly sealed in clearly labelled containers for disposal. At some authorized disposal sites, dusty waste may be treated differently in order to ensure they are dealt with promptly to avoid the being wind blown. Check for national and/or regional regulation which may apply.

SECTION 14. TRANSPORT INFORMATION

You should ensure that fibres are not able to be blown around during transport of new product or the disposal of used material. Not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG).

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: Regulation relating to transport by air.

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 labelling of dangerous preparations (OJ L 200 of 30.7.1999)
- Regulation (EC) No 1907/2006 dated 18th December 2006 on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation (EC) No 1272/2008 dated 20th January 2009 on classification, labelling 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, labelling 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:

a) Council Directive 89/391/EEC dated 12 June 1989 "on the introduction of measures to encourage improvements in the safety and health of workers at work" (OJEC (Official Journal of the European Community) L 183 of 29 June 1989, p.1).

b) Council Directive 98/24/EC dated 7 April 1998 "on the protection of workers from the risks related to chemical agents at work" (OJEC L 131 of 5 May 1998, p.11).

OTHER POSSIBLE 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 any national regulation.

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

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
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