Material Safety Data Sheet acc. To 91/155/EG

Re.No.: 0 / 26.01.99

1 Identification of the Product and of the Company:

1.1 Identification of the product: Alumina-, Mullite-Fibre
ALTRA 72, ALTRA 80, ALTRA 97

1.2 Identification of the company:

1.2.1 Producer / Sales in Germany: RATH GmbH
Street / PO-Box: Krefelder Straße 680 – 682
Country-Code. / PLZ / City: D-41066 Mönchengladbach
Phone / Fax: (0049)-2161/9692-0 / 0049/2161/9692-41
Emergency call: Dr. Vera Finke

2 Composition / Information on Ingredients

2.1 Information on Ingredients:
Alumina fibre with an alumina content >70 %.

2.2 The fibre is **not classified** as "carcinogenic substance according to category 2 and irritant acc. to EC directive 97/69/EG" (refer also to section 15).

CAS-Nr. (Einecs-Nr.)	**Synonyms**	**Symbol**	**R – Sätze**
134428-1	Alumina fibre (polycrystalline) Mullite fibre (polycrystalline)	X_n	R 38 - Irritating to skin

Content (%):	**ALTRA 72**	**ALTRA 80**	**ALTRA 97**
Al_2O_3	~ 72	~ 80	~ 97
SiO_2	~ 28	~ 20	~ 3

3 Hazard Identification

Eyes and skin: Mild mechanical irritant
Inhalation: May release fibrous dust
Reduce dust exposure as far as technically possible

3.1 Irritant effects:
Mild mechanical irritation to skin, eyes and upper respiratory system may result from exposure

3.2 Concerns about chronic respiratory health effects:
The manufacturer classified alumina fibres in cat. 3 by himself. Inhalation tests of animals have shown, that the tests haven't caused any lung damage. (Toxicology Letters, 8, (1981) 153-163; Br. J. exp. Path. (1981) 62, 323; Ann. Occup. Hyg. Vol.26., 1982, 371-380.)

4 First Aid Measures

Skin: In case skin irritation rinse affected areas with water and wash gently.
Eyes: In case of serious eye contact flush abundantly with water, have eye bath available

5 Fire Fighting Measures:

Non combustible products. Packaging and surrounding materials may be combustible. Use extinguishing agent suitable for surrounding combustible materials. Wear self-contained breathing apparatus when entering oxygen deficient area.

6 Accidental Release Measures:

6.1 Personal protection in case of accidental release or spillage likely to result in an abnormally high dust concentration:

Provide the workers with respiratory protective equipment as detailed in section 8. Restrict access to the area to a minimum number of workers. Restore the situation to normal as quickly as possible. Prevent further dust dispersion for example by damping the materials.

6.2 Methods for cleaning up:

Pick up large pieces and use a vacuum cleaner fitted with high efficiency filter. If brushing is used, ensure that the area is wetted down first. Do not use compressed air for clean up. For waste disposal refer to section 13.

6.3 Environmental protection:

Do not allow to be wind blown. Do not flush spillage to drain and prevent from entering natural water courses. Check for local regulations which may apply.

7 Handling and Storage

7.1 Techniques to reduce dust emissions during handling:

Handling can be a source of dust emission. Process should be designed to limit the amount of handling. Wherever possible handling should be carried out under ventilation. Using specially treated or packaged products will minimise dust emission. Regular good housekeeping will minimise secondary dust dispersal (see section 6).

Personal protection: (see next section)

7.2 Storage:

Always use scaled and visibly labelled containers.
Avoid damaging containers.
Reduce dust emission during packing out.
Emptied containers which may contain debris should be cleaned.

8 Exposure Control / Personal Protection:

8.1 Techniques to reduce dust exposure to a minimum:

Review your Alumina fibre (AF) applications and access situations with the potential for dust release. Where practical enclose dust sources and provide dust extraction at source. Delimit AF work areas and restrict access to informed and trained workers. Use operating procedures which 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 proper workplace controls.

Using products specially tailored to your application(s) will help controlling dust. Some products can be delivered ready for use without further cutting or machining.
Some could be treated or packaged to minimise or avoid dust emission during handling.
Consult your supplier for further details.

8.2 Hygiene standards and exposure limits:

Hygiene standards and exposure limits may differ from country to country. Check those currently applying in your country and comply with regulations. Examples of exposure limits applying (in January 1998) are given below:

Country	Exposure limit*	Source
Germany	0,5 F/ml	TRGS 900
France	0,6 F/ml	Circulare DRT No 95-4 du 12.01.95
United Kingdom	2,0 F/ml	HSE - EH40 - Maximum Exposure Limit

* Time weighted average concentrations of airborne respirable ceramic fibres measured by the conventional membrane filter method.

8.3 Personal protection:

Skin and eye protection during major handling (example: dismantling operations).
Wear gloves and overalls which are loose fitting at the neck and wrists in case. Wash work clothing separately. Wear goggles or safety glasses with side shields in case of over head working. After handling rinse exposed skin with water.

8.4 Respiratory protection:

Use appropriate respiratory protective equipment (RPE) against excessive concentrations of fibrous dust or other possible contaminant which could have been introduced. For dust concentrations below the exposure limit value, (RPE) ist not required but FFP2 respirators may be used on a voluntary basis.

For short term operations where excursions above the exposure limit value are less than a factor of ten, use FFP3 respirators. In case of higher concentrations, please contact your supplier for advice.

8.5 Information and training of workers:

Workers should be informed on:

- the applications involving fiber-containing products;
- the potential risks to health resulting from exposure to fibrous dust;
- the requirements regarding smoking, eating and drinking at the workplace;
- the requirements for protective equipment and clothing.

Workers shall be trained on:

- the good working practices to limit dust emissions;
- the proper use of protective equipment.

9 Physical and Chemical Properties:

Condition:	Solid (fibrous)
Coulor:	White
Oxidising properties:	None
Odour:	None
Melting point:	> 2000 °C
Flammability:	None
Explosive properties:	None
Length weighted geometric mean diameter:	> 1,5 µm

10 **Stability and Reactivity:**

Conditions or materials to avoid: None

11 **Toxicological Information:**

11.1 **Irritant properties:**

When tested using approved methods (Directive 67/548/EC, Annex 5, Method B4), this material gives negative results. All man made mineral fibers, like some natural fibres, can produce a mild irritation resulting in itching or rarely, in some sensitive individuals, in a slight reddening. Unlike other irritant reactions this is not the result of allergy or chemical skin damage but is caused by mechanical effects.

11.2 **Human data on chronic respiratory health effects:**

No known disease associated with exposure to Alumina fibre even though these fibres have been used for nearly 20 years.
Industry epidemiologic investigations of Ceramic fibre (RCF) (resemble short fibre to alumina fibre (AF))
On production workers are continuing in Europe and USA

1. There is no evidence of any fibrotic lung desease whatsever on X-Ray.
2. There is no evidence of any lung desease among those employees exposed to RCF that have never smoked. Among smokers and ex-smokers, some symptoms of dry cough and brathlessness were found.
3. In the US-study, pleural plaque have been observed in a small number of employees who had a long duration of employment. It should be noted that plaques are not pre-cancer nor are they associated with any measurable effect on lung function.

11.3 **Inhalation toxicology data in animals:**

In earlier studies RCF together with other man-made mineral fibers were regarded as inert. In the 70‘s and 80‘s tumours were produced in animals after intrapleural or intraperitoneal injection but the several inhalation experiments conducted were inconclusive. In 1990 inhalation studies known as the ”RCC experiments” were conducted with size selected fibers. Fibrosis, lung tumours and mesotheliomas were produced in animals exposed to very high concentrations. It was then discovered that the size selection process led to a serious contamination of the test samples by non-fibrous particles. The inhaled particles may have decreased the rate of fiber clearance leading to a condition sometimes referred to as pulmonary overload. Experts are still analysing the significance of the RCC results. In further tests, uncontaminated fiber samples have proved to be largely less biologically active.

12 **Ecological Information:**

Inert materials which remain stabil over time..

13 **Disposal Considerations**

Waste from these materials is not classified as hazardous waste and may generally be disposed of at a normal tipping site which has been licensed for the disposal of industrial waste. In case of contamination by products classified as hazardous waste, expert guidance should be sought. Unless wetted, such a waste is normally dusty and so should be properly sealed in clearly and visibly labelled containers for disposal. At some tip sites dusty waste may be treated differently in order to ensure they are dealt with promptly to avoid them being wind blown. Check for local regulations which may apply.

EWC-Code for mineral fiber waste: 101 299

14 **Transport Information:**

Ensure that dust is not wind blown during transportation

15 Regulatory Information:

15.2 Fiber type classification

Carc. Cat. 3
Symbol Xn (harmful)

R 20 – Harmful by inhalation
R 38 – Irritating to skin

15.3 Safety Advice Phrases:

S 24/25 Avoid contact with eyes and skin

S 36/37/38 Wear suitable loose fitting, long-sleeved clothes, gloves and eye protection

15.4 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 applicable regulations.

16 Other Information:

16.1 Labelling

Substances are labelled in accordance with the above classification (see section 15).

16.2 Useful references:

- Hazards from the use of Refractory Ceramic Fiber. Health and Safety Executive; Information document, HSE 267 / (1998).
- Working with Refractory Ceramic Fibers; ECFIA; Code of practice (February 1998).
- TRGS 521 : Faserstäube
- European Communities, 13 December 1997, and its national adaptions.
- Maxim LD et al (1998).
  CARE – A European programme for monitoring and reducing refractory ceramic fiber dust at the workplace - initital results.
  Gefahrstoffe – Reinhaltung der Luft, 58 : 3, 97-103

16.3 CARE Programm

The European Ceramic Fibers Industry Association (ECFIA) has undertaken an extensive hygiene Programme for refractory ceramic fibers (RCF).

The objectives are twofold:

(i) to monitor workplace dust concentrations at both manufacturers‘ and customers‘ premises, and

(ii) 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; (see Maxim et al referenced above).
If you wish to participate in the CARE programme, contact ECFIA or your supplier.

16.4 Spraying

ECFIA recommends that this fiber is not used for spraying.