MATERIAL AND SAFETY DATA SHEET

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

Date MSDS prepared: 2016-04-07
Replaces MSDS date:

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: AES-fibre

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses: Isolation material for heat shields

1.3 Details of the Supplier of the safety data sheet

Manufacturer/supplier Bryne AB
Street address/P.O. Box Åbogatan 1
Country ID/Postcode/Place SE-343 71 Diö
Telephone no 073-022 29 87
E-mail info@bryne.se

1.4 Emergency telephone number

Opening hours: 7 am-4 pm CET

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008 (CLP)

This product does not meet the criteria for classification in any hazard class according to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. However, a safety data sheet is being supplied for it upon request as it contains a substance for which there is a Union workplace exposure limit.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

Hazard pictograms	Not applicable
Signal word	Not applicable
Hazard statements	Not applicable
Precautionary statements	Not applicable

2.3 Other hazards

Not relevant.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

This product contains of a mixture of different ingredients.

3.2 Mixtures

Note that the table shows known hazards for the ingredients in a pure state. The hazards are lowered or eliminated when mixed or diluted, se section 16 d.

Ingredient	Classification	Concentration
Alkaline Earth Silicate		
CAS no 436083-99-7 Index no 650-016-00-2	-	<=100%

An explanation of the ingredients classification and labelling are given in section 16 e. Official shortening is written by regular font. Italic font is used for specifications and/or additions which have been used for calculation of the classification of the mixture, se section 16b. Also containing non labelling component(s).

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures

Following inhalation

If nose and throat become irritated move to a dust free area, drink water and blow nose. If symptoms persist, seek medical advice.

Following eye contact

In case of eye contact flush abundantly with water, have eye bath available. Do not rub eyes.

Following skin contact

Handling of this material may generate mechanical temporary skin irritation. If this occurs, rinse affected areas with water and wash gently. Do not rub or scratch exposed skin.

4.2 Most important symptoms and effects, both acute and delayed

Irritation of skin. Irritation of eyes.
Irritation in nose and throat.

4.3 indication of any immediate medical attention and special treatment needed

Symptomatic treatment.

SECTION 5: FIREFIGHTING 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 product.

5.3 Advice for firefighters

Packaging and surrounding materials may be combustible.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures.

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

6.2 Environmental precautions

Do not flush spillage to drain.

6.3 Methods and material for containment and cleaning up

Restore the situation to normal as quickly as possible.
Prevent further dust dispersion for example by damping the materials.
Pick up large pieces and use a vacuum cleaner fitted with 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 wind-blown.

6.4 Reference to other sections

See section 8 and 13 for personal protective equipment and wastes disposal.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling

Handling can be a source of dust emission. The process or processes should be designed to limit the amount of handling. Whenever possible, handling should be carried out under controlled conditions (i.e., use dust exhaust system).

Regular good housekeeping will minimise secondary dust dispersal.

7.2 Conditions for safe storage, including any incompatibilities

Store in original packaging and dry area whilst awaiting use.
Always use sealed and visibly labelled containers.

7.3 Specific end use(s)

Not applicable.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

8.1.1 National occupational exposure limit values

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. Examples of exposure limits applying (in January 2010) to mineral wools (MMMF machine made mineral fibres) in different countries are given below:

COUNTRY	EXPOSURE LIMIT*	SOURCE
Germany	1.25 mg/m^3	TRGS 900
France	1.0f/ml	Circulaire DRT No 95-4 du 12.01.95
U.K.	2.0 f/ml and 5 mg/m^3	HSE – EH40 Workplace Exposure Limit

**Time weighted average concentrations of airborne respirable fibres measured over 8 hours by the conventional membrane filter method or the total inhalable dust using standard gravimetric techniques.*

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Review your application(s) in order to identify potential sources of dust exposure.

8.2.2 Individual protections measurer, such as personal protective equipment

Local exhaust ventilation, which collects dust at source, can be used. For example, down draft tables, emission controlling tools and material handling equipment.

8.2.2.1 Eye and face protection: As necessary wear goggles or safety glasses with side shields

8.2.2.2 Skin protection: Wear gloves and work clothes, which are loose fitting at the neck and wrists. Soiled clothes should be cleaned to remove excess fibres before being taken off (e.g. use vacuum cleaner, not compressed air).

8.2.3 Environmental exposure controls

Keep the workplace clean. Use a vacuum cleaner fitted with an HEPA filter; avoid brushing and using compressed air.

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 ten times the limit value use FFP2 respirators.

In case of higher concentrations or where the concentration is not known, please seek advice from your company and/or your supplier.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance	Physical state: solid Colour: white
b) Odour	Odourless
c) Odour threshold	Not applicable
d) pH	Not applicable
e) Melting point/freezing point	>1330 °C
f) Initial boiling point and boiling range	Not applicable
g) Flash point	Not applicable
h) Evaporation rate	Not applicable
i) Flammability (solid/gas)	Not applicable
j) Upper/lower flammability or explosive limits;	Not applicable
k) Vapour pressure	Not applicable
l) Vapour density	Not applicable
m) Relative density	2.6 g/cm^3
n) Solubility(ies)	Solubility in water: Unsolvable (<0.001%)
o) Partition coefficient: n-octanol/water	Not applicable
p) Auto-ignition temperature	Not applicable

q) Decomposition temperature	Not applicable
r) Viscosity	Not applicable
s) Explosive properties	Not applicable
t) Oxidising properties	Not applicable

9.2 Other information

Length weighted geometric mean diameter of fibres contained in the product: 1.9-6 µm

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Under storage at normal ambient temperatures (minus 40° C to + 40° C), the product is stable.

10.2 Chemical stability

Under storage at normal ambient temperatures (minus 40° C to + 40° C), the product is stable.

10.2 Possibility for hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4 Conditions to avoid

None.

10.5 Incompatible materials

Avoid contact to acids.

10.6 Hazardous decomposition products

Upon heating above 900°C for sustained periods, this amorphous material begins to transform to mixtures of crystalline phases. For further information, please refer to Section 16.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Reproductive toxicity

As far as we know no chronical effects has been reported for this product.

Carcinogenity

As far as we know no carcinogenical effects has been reported for this product.

Skin corrosion/irritation

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

Aspiration hazard

These materials have been designed to allow rapid clearance from lung tissue. And this low bio persistence has been confirmed in many studies on AES using EU protocol ECB/TM/27(rev 7).

When inhaled, even at very high doses, they do not accumulate to any level capable of producing a serious adverse biological effect. In lifetime chronic studies there was no exposure-related effect more than would be seen with any “inert” dust.

Sub chronic studies at the highest doses achievable produced, at worst, a transient mild inflammatory response. Fibres with the same ability to persist in tissue do not produce tumours when injected into the peritoneal cavity of rats.

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Not applicable.

12.2 Persistence and degradability

Information considering persistence and degradability cannot be found but there is no reason to expect the material not to be degradable.

12.3 Bio accumulative potential

Information on bioaccumulation cannot be found but there is no reason to expect the material to be bio

accumulative.

12.4 Mobility in soil

Information on mobility in soil cannot be found but there is no reason to expect the product to be environmentally harmful.

12.5 Results of PBT and vPvB assessment

No assessment can be found.

12.6 Other adverse effects

No adverse effects on this material on the environment are anticipated

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

13.1.1 Product/packaging disposal

Waste from these products are classed as non-hazardous and may generally be disposed of at landfill, which has been licensed for this purpose. Please refer to the European list (Decision no 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.

SECTION 14: TRANSPORT INFORMATION

14.1 UN number

Not classified as dangerous goods under relevant international transport regulations (ADR, RID, IATA, IMDG, AND Refer Section 16 “Definitions”).

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 and the IBC Code

Not applicable.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

FIBRE TYPE DEFINITION UNDER DIRECTIVE 67/548/EEC

According to Directive 67/548/EEC the fibre contained in this product is a mineral wool belonging to the group of “man-made vitreous (silicate) fibres with random orientation with alkaline earth oxide ($Na_2O+K_2O+CaO+MgO+BaO$) content greater to 18% by weight".

Under criteria listed in nota Q of Directive 67/548/EEC, fibres contained in the products listed in the title are exonerated from carcinogen classification because of low pulmonary bio persistence measured by the methods specified in European Union and German regulations (EU protocol ECBT/TM/27(rev 7).

31st Adaptation to Technical Progress of Directive 67/548/EEC of 15 January 2009 has removed skin irritancy classification for man-made vitreous (silicate) wools.

FIBRE TYPE DEFINITION ACCORDING TO REGULATION (EC) No 1272/2008 AMENDING AND REPEALING DIRECTIVES 67/548/EEC AND 1999/45/EC, AND AMENDING REGULATION (EC) No 1907/2006.

This regulation aims at incorporating the GHS criteria into the EU Community law. Under 1.1.3.1. (Nota Q) of Annex VI of regulation (EC) 1272/2008 the classification as a carcinogen 2 needs not apply on the basis of short

term bio persistence test by intratracheal installation showing a half-life of less than 40 days for fibres longer than 20 µm.

1st Adaptation of Technical Progress of regulation (EC) N°1272/2008 of 10 August 2009 has removed skin irritancy classification for man-made vitreous (silicate) wools.

Fibres contained in this product are therefore free of any classification and do not require labelling under CLP regulation.

Other regulations, restrictions and prohibition 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.
This applies for sales in the European Union

15.2 Chemical safety assessment
No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16: OTHER INFORMATION

16a. Indication of changes:
Not applicable.

16b. Abbreviations and acronyms:
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

16c. Key literature references and sources for data

- 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 L 183 of 29 June 1989, p.1).
- 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).
- Council Directive 98/24/EC of 7 April 1998 “on the protection of the health and safety of workers from the risks related to chemical agents at work” (OJEC L 131 of 5 May 1998, p11).

16d. Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

16e. Relevant H-statements (number and full text)

16f. Training advice
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:

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

Further information
In almost all applications high temperature insulating wools products (HTIW) are used as an insulating material helping to maintain temperature at 900°C or more in a closed space. As produced, AES-fibres are vitreous (glassy) materials which, upon continued exposure to elevated temperatures (above 900 °C) might de-vitrify. 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. 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).

IARC evaluation as provided in Monograph 68 is not relevant as CS is not biologically available in after service HTIW.
In applications where the material is heat soaked, duration of heat exposure is normally short and a significant de-vitrification 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 HTIW material has not shown any increased toxicity in vitro and in vivo. The results from different combinations of factors like increased brittleness of fibres, or microcrystals embedded in the glass structure of the fibre and therefore not biologically available may explain the lack of toxicological effects.

Care programme ("Controlled and reduced Exposure")
The trade association representing the European high temperature insulation wool industry (ECFIA) has undertaken an extensive hygiene programme for High Temperature Insulation Wool (HTIW). The objectives are twofold:

- to monitor workplace dust concentrations at both manufacturers' and customers' premises,
- to document manufacturing and use of HTIW 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 (http://www.ecfia.eu) .

NOTICE:
The information presented herein is presented in good faith and believed to be accurate as of the effective date of this Safety Data Sheet. Employers may use this SDS to supplement other information gathered by them in their efforts to assure the health and safety of their employees and the proper use of the product. This summary of the relevant data reflects professional judgment; employers should note that information perceived to be less relevant has not been included in this SDS. Therefore, given the summary nature of this document, Bryne AB does not extend any warranty (expressed or implied), assume any responsibility, or make any representation regarding the completeness of this information or its suitability for the purposes envisioned by the user.