1 Identification of the substance/mixture and of the company/undertaking

- Product identifier

- Trade name: HOP-MIX
- Substance name: Man-made vitreous (silicate) fibres with random orientation with alkaline oxide and alkali earth oxide (Na2O+K2O+CaO+MgO+BaO) content greater than 18% by weight
- Index number: 650-016-00-2
- Registration number: 01-2119495511-37-0000
- Relevant identified uses of the substance or mixture and uses advised against:
  - Uses advised against:
- Application of the substance / the preparation:
  Manufacturing of glass fibre papers

- Details of the supplier of the safety data sheet
- Supplier/Manufacturer: HEINRICH OSTHOFF-PETRASCH GmbH& Co KG
  Rugenbarg 63a
  22848 Norderstedt
  Germany
  Telefon: +49-(0) 40 528 707 70
  Telefax: +49 (0) 40 528 707 78
  www.osthoff-petrasch.de

- Information department: See supplier/manufacturer
- Emergency telephone number: +49(0) 40 52870770
  Handy: +49(0)40 01776784633
  National Poisons Information Service (NPIS)
  24 hour national number is 0844 892 0111 professionals only
  National Health Service (NHS)
  24 hour national number is 0845 4647 consumer

2 Hazards identification

- Classification of the substance or mixture
  - Classification according to Regulation (EC) No 1272/2008:
    - GHS08 health hazard
    - Carc. 2 H351 Suspected of causing cancer.

- Classification according to Directive 67/548/EEC or Directive 1999/45/EC:
  - Xn; Harmful
    - R40: Limited evidence of a carcinogenic effect.
    - Carc. Cat. 3

- Information concerning particular hazards for human and environment:
  Under working conditions mainly resorbed via respiratory tract.

- Label elements
  - Labelling according to Regulation (EC) No 1272/2008: The substance is classified and labelled according to the CLP regulation.
Safety data sheet
according to 1907/2006/EC, Article 31

Trade name: HOP-MIX

- Hazard pictograms

GHS08

- Signal word: Warning
- Hazard statements: H351 Suspected of causing cancer.
- Precautionary statements:
  P281 Use personal protective equipment as required.
  P201 Obtain special instructions before use.
  P308 + P313 IF exposed or concerned: Get medical advice/attention.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- Other hazards:
- Results of PBT and vPvB assessment:
  - PBT: Substance characteristics do not meet screening criteria.
  - vPvB: Substance characteristics do not meet screening criteria.

3 Composition/information on ingredients

- Chemical characterization: Substances
Composition (%):

<table>
<thead>
<tr>
<th>Substances</th>
<th>A-glass</th>
<th>B-glass</th>
<th>C-glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>SiO₂</td>
<td>69.0 – 72.0</td>
<td>55.0 – 60.0</td>
<td>63.0 – 67.0</td>
</tr>
<tr>
<td>Na₂O</td>
<td>10.5 – 12.0</td>
<td>9.8 – 13.5</td>
<td>14.0 – 17.0</td>
</tr>
<tr>
<td>K₂O</td>
<td>4.5 – 6.0</td>
<td>2.5 – 4.0</td>
<td>0 – 2.0</td>
</tr>
<tr>
<td>CaO</td>
<td>5.0 – 7.0</td>
<td>1.5 – 5.0</td>
<td>4.0 – 7.0</td>
</tr>
<tr>
<td>MgO</td>
<td>2.0 – 4.0</td>
<td>0.7 – 2.0</td>
<td>2.0 – 4.0</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>2.5 – 4.0</td>
<td>4.0 – 7.0</td>
<td>3.0 – 5.0</td>
</tr>
<tr>
<td>B₂O₃</td>
<td>&lt; 0.15</td>
<td>8.0 – 11.0</td>
<td>4.0 – 7.0</td>
</tr>
<tr>
<td>BaO</td>
<td>-</td>
<td>3.6 – 6.0</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>ZnO</td>
<td>0 – 2.0</td>
<td>2.0 – 5.0</td>
<td>&lt; 0.1</td>
</tr>
<tr>
<td>F₂</td>
<td>-</td>
<td>&lt; 1.0</td>
<td>&lt; 1.0</td>
</tr>
</tbody>
</table>

CAS No. Description:
Mineral wool, with the exception of those specified elsewhere in this Annex

- Identification number(s): 926-771-1
- Index number: 650-016-00-2

4 First aid measures

- Description of first aid measures
- General information: If symptoms persist or in case of doubt, seek medical advice.
- After inhalation:
  Supply fresh air and be sure to call a doctor.
  In case of unconsciousness, place patients on their side in a stable position for transportation.
- After skin contact:
  Immediately wash with water and soap and rinse thoroughly. If skin irritation continues, consult a doctor.
- After eye contact:
  Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult a doctor (eye specialist).
- After swallowing:
  Unintentional swallowing is not very likely in the industrial area. If product is ingested:
  Rinse mouth with water, Drink 2-4 glasses of water.
  Seek immediate medical advice.
5 Firefighting measures

- **Extinguishing media**
- **Suitable extinguishing agents**: The product is not combustible and does not support the combustion. Use fire fighting measures suiting the environment.
- **For safety reasons unsuitable extinguishing agents**: No data available
- **Special hazards arising from the substance or mixture**: No specific hazards known.
- **Advice for firefighters**
  - **Protective equipment**: Wear self-contained respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**:
  - Use respiratory protective device against the effects of fumes/dust/aerosol.
  - Wear protective clothing.
  - Keep unprotected persons away.
  - Ensure adequate ventilation.
- **Environmental precautions**: No special measures required.
- **Methods and material for containment and cleaning up**:
  - Pick up with a suitable vacuum cleaner.
  - Make sure to recycle or dispose of in suitable receptacles.
- **Reference to other sections**:
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

7 Handling and storage

- **Handling**:
  - **Precautions for safe handling**
    - Keep receptacles tightly sealed.
    - Ensure good ventilation/exhaustion at the workplace.
    - Restrict the quantity stored at the workplace.
    - Avoid inhalation of dust.
    - Avoid contact with eyes and skin.
  - **Information about protection against explosions and fires**: Observe the general rules of industrial fire protection.

- **Conditions for safe storage, including any incompatibilities**

- **Storage**:
  - **Requirements to be met by storerooms and receptacles**: Not required
  - **Information about storage in one common storage facility**
    - Store away from foodstuffs.
    - Store away from feed.
    - Refer to national regulations for storing hazardous chemicals.
  - **Further information about storage conditions**
    - Store in dry conditions.
    - Protect from humidity and water.
  - **Storage class**: 13 Non combustible solid

8 Exposure controls/personal protection

- **Additional information about design of technical systems**: No further data; see item 7.
Control parameters

Components with limit values that require monitoring at the workplace: Not required.

DNELs

Inhalative DNEL/Cons/LLE 3 mg/m³ (Human)
DNEL/in/LLE 9 mg/m³ (Human)

PNECs
Since the substance has no potential for bioaccumulation no PNEC oral was derived.
No long term toxicity to aquatic organisms expected. Therefore no derivation of PNEC.

CAS No. Designation of material % Type Value Unit

Additional Occupational Exposure Limit Values for possible hazards during processing:
In the UK, all MMMFs are currently subject to a workplace exposure limit (WEL) of 5 mg/m³ total dust, or 2 fibres/ml (both 8 hour time weighted averages), whichever is reached first.
Guidance on exposure limits:
Although EH40 currently specifies dual WELs (both gravimetric and airborne concentration), the gravimetric limit is the most appropriate and will usually be achieved first. Therefore the appropriate exposure limit for mineral wool is 5 mg/m³ total dust, 8 hour TWA. Wherever the dust exposure level is incapable of being predicted all applications must be assessed under COSHH3 by a competent person.

Exposure controls

Personal protective equipment:

General protective and hygienic measures:
The usual precautionary measures should be adhered to when handling chemicals.
Keep away from foodstuffs, beverages and feed.
Do not eat or drink while working.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
Do not inhale dust / smoke / mist.
Vacuum clean contaminated clothing. Do not blow or brush off contamination.
Use skin protection cream for skin protection.

Breathing equipment:
In case of unintentional release of substance, exceeding the occupational exposure limit value:

In case of brief exposure or low pollution use a respiratory filter device. In case of intensive or longer exposure use a respiratory protective device that is independent of circulating air.

Short term filter device:
Filter P2.

Protection of hands:
Protective gloves.
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
After use of gloves apply skin-cleaning agents and skin cosmetics.

Material of gloves:

Penetration time of glove material:

Eye protection:
At formation of dust or insufficient ventilation: Tightly sealed goggles.

Body protection:
Dust-proof protective clothing
Selection of protective clothing is subject to the specific kind of work and the corresponding risk potential.

Physical and chemical properties

Information on basic physical and chemical properties

General Information:

Appearance:
Form: Solid in various forms
loose wool
Trade name: HOP-MIX

Colour: White
Odour: Odourless
Odour threshold: not applicable
pH-value at 20 °C: 8-10 (DIN 54275)

Change in condition:
- Melting point/Melting range: ~ 920 - 1220 °C
- Boiling point/Boiling range: not applicable
- Fusion temperature / range: ~ 700 °C

Flash point: not applicable
Ignition temperature: not applicable
Danger of explosion: Product does not present an explosion hazard.

Explosion limits:
- Lower: not applicable
- Upper: not applicable
Oxidizing properties: None.

Density at 20 °C: ~ 2.4 - 2.9 g/cm³ (glass)
Dissociation constant pKa: Not applicable

Solubility in / Miscibility with Water: practically insoluble
Segregation coefficient (n-octanol/water): not applicable

Viscosity:
- dynamic: Not applicable.
- kinematic: Not applicable.
Surface tension: not applicable

Other information:
Length weighted arithmetic thickness: Average (D): 4.39 µm, 4.27 µm, 3.86 µm
Length weighted geometric thickness: Average (Dg): 3.86 µm, 3.78 µm, 3.48 µm

10 Stability and reactivity

- Reactivity
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used and stored according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Incompatible materials: Water and humidity
- Hazardous decomposition products: No hazardous decomposition products; if instructions for storage and handling are followed.

11 Toxicological informations

- Information on toxicological effects
- Acute toxicity:
- LD/LC50 values that are relevant for classification:
  Due to the physiochemical properties testing of acute oral and dermal toxicities not relevant.
  Inhalation: results from long-term inhalation toxicity studies are available, therefore no testing of acute toxicity required
- Primary irritant effect:
- on skin: No irritating effect species: rabbitOECD test 404
- on eye: Eye irritation is possible after mechanical influence (dust).
- On respiratory tract: No irritating effect.
- Sensitization: No sensitizing effects known.
Safety data sheet  
according to 1907/2006/EC, Article 31  
 Printing date: 14.04.2011  
Revision: 14.04.2011  
Trade name: HOP-MIX

- Other information (about experimental toxicology):
- Carcinogenic, mutagenic effects and adverse effects on reproduction:
  Due to the structure and properties of the substance no adverse effects with regard to reproduction or mutagenicity are expected. The international cancer research centre (IARC) classifies this substance as a class 2B carcinogen (possibly carcinogenic for humans).
  Inhalative NOAEL(canc) > 30 mg/m³ (rat)
  - Inhalation: aerosol; nose only
  - Exposure: 6h/d, 5d/week - 24 months
  - (No significant effect was observed at 30 mg/m³ Corresponding to 243 WHO fibres/cm³)
- Toxicokinetics, metabolism and distribution:
  The most likely routes of exposure for FMMVF fibres is evaluated to be by inhalation. Fibres have been shown to disintegrate slowly in acidic environment. Inhaled fibres are subjected to breakage, leading to shorter fibre length. Due to the inert nature of the substance, and the fact that the substance does not cross biological barriers, systemic exposure leading to toxic reactions is evaluated to be very unlikely.
- Repeated dose toxicity:
  - Inhalative NOAEC 30 mg/m³ (rat)
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):
  - Carc. Cat. 3

12 Ecological informations

- Toxicity
  - Aquatic toxicity:
    - EC₅₀/72h > 1000 mg/l (daphnia magna) (OECD 202)
    - > 1000 mg/l (Pseudokirchneriella subcapitata) (OECD 201)
    - LC₅₀/96h (static) > 1000 mg/l (danio rerio) (OECD 203)
    - static renewal test i.e. all test media were changed every 24 hours
- Persistence and degradability
- Other information:
  - Inorganic substance, not biodegradable.
  - No hydrolysis
- Behaviour in environmental systems:
- Bioaccumulative potential: Potential for bioconcentration in aquatic organisms is low.
- Mobility in soil: not relevant
- Additional ecological information:
  - General notes:
    - Classification as not hazardous for water according to ident-no. 765 (natural substances like minerals, sand, wood, coal, cellulose) according to appendix 1 of VwVwS dated 27.7.2005 (German regulation).
- Toxicity to soil dwelling organisms: Not relevant
- Results of PBT and vPvB assessment:
  - PBT: Substance characteristics do not meet screening criteria.
  - vPvB: Substance characteristics do not meet screening criteria.

13 Disposal considerations

- Waste treatment methods
- Recommendation:
  - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  - Must be recycled or disposed of according to the regulations. Waste has to be classified according to the European Waste Catalogue based on the identification of the waste generating source.

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Trade name: HOP-MIX

14 Transport information

- Land transport ADR/RID (cross-border)
  - ADR/RID class: No hazardous good according to the regulation.

- Maritime transport IMDG:
  - IMDG Class: No hazardous good according to the regulation.

- Air transport ICAO-TI and IATA-DGR:
  - ICAO/IATA Class: No hazardous good according to the regulation.
  - Special precautions for user: Not applicable.

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations
- Information about limitation of use:
  Take note of Directive 94/33/EC on the protection of young people at work.
  Take note of Directive 92/85/EC on the safety and health of pregnant workers at work.
- Water hazard class: Not hazardous for water
- Chemical safety assessment: A chemical Safety Assessment has been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Reasons for amendments:
  Regulation (EC) No. 1272/2008 /CLP
  EC Regulation 453/2010
  Ecological data
  Information on toxicity
  Registration number
  Exposure scenarios
  General revision
- Replaces version dated: 24.11.2009

- Department issuing MSDS:
  KFT Chemieservice GmbH
  Im Leuschnerpark, 3 D-64347 Griesheim
  Postfach 1451 D-64345 Griesheim
  Phone: +49 6155 86829-0Fax: +49 6155 86829-25
  Safety Data Sheet Service: +49 6155 86829-22
  Contact: Angelika Torges

- Abbreviations and acronyms:
  ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
  IMDG: International Maritime Code for Dangerous Goods
  IATA: International Air Transport Association
  IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
  ICAO: International Civil Aviation Organization
  ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date: 14.04.2011
Version: 3
Revision: 14.04.2011

Trade name: HOP-MIX

Sources: Chemical Safety Report
* Data compared to the previous version altered.
Changes have been made to chapters marked with a *, as compared to the previous version.

GB

(Contd. of page 7)

(Contd. on page 9)
Annex: Exposure scenario 1

- Short title of the exposure scenario
  - Mineral wool fibres production
  - Manufacturing of individual fibres

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.6 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is < 10.1 fibres/cm³ equalling < 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 2

- **Short title of the exposure scenario**
  - Mineral wool fibres production
  - Manufacturing bulk, commercial and industrial

- **Exposure estimation**
  - **Worker (inhalation)**
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.07 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³ (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 3

- Short title of the exposure scenario
  Manufacturing products
  Manufacturing filtration products

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.1 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 4

- Short title of the exposure scenario
  Manufacturing products
  Manufacturing of non-woven filter media

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.6 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 5

- Short title of the exposure scenario
  Manufacturing products
  Final product manufacturing of commercial filters

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.03 - 0.6 fibres/cm³. The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 6

- Short title of the exposure scenario
  Manufacturing products
  Production of final product of GFB filters on Edinburgh paper machine

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from industry) for short term exposure: 0.013 - 0.775 fibres/cm³.
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.066 - 0.079 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 7

- **Short title of the exposure scenario**
  - Manufacturing products
  - Final product routine fiber monitoring on Voith 1 and 2

- **Exposure estimation**
  - **Worker (inhalation)**
    - Estimated fibre concentration in air (reference value(s) from industry) for short term exposure: 0.157 - 0.179 fibres/cm³.
    - Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.0047 - 0.051 fibres/cm³.
    - The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    - The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 8

- Short title of the exposure scenario
  Manufacturing products
  Final product reel change on Edinburgh paper machine

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from industry) for short term exposure: 0.201 - 0.285 fibres/cm³.
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.038 - 0.042 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 9

- Short title of the exposure scenario
  Manufacturing products
  Final product cutting by Edinburgh paper machine

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.0331 - 0.184 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 10

- Short title of the exposure scenario
  Manufacturing products
  Final product re-pulping of Cornwall paper machine

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.017 - 0.206 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 11

- Short title of the exposure scenario
  Manufacturing products
  Final product production run Cornwall paper machine

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.036 - 0.45 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 12

- **Short title of the exposure scenario**
  - Industrial use
  - Battery separator

- **Exposure estimation**
  - **Worker (inhalation)**
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.01 - 3.80 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 13

- Short title of the exposure scenario
  Manufacturing products
  Manufacturing separator and filtration media

- Exposure estimation
- Worker (inhalation)
  Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.01 - 4.63 fibres/cm³.
  The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
  The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 14

- Short title of the exposure scenario
  Industrial use
  Aircraft insulation cutting/sawing with power tools

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.06 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 15

- **Short title of the exposure scenario**
  - Industrial use
  - Manufacturing aircraft insulation

- **Exposure estimation**
  - **Worker (inhalation)**
    - Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.01 - 2.29 fibres/cm³.
    - The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    - The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 16

- Short title of the exposure scenario
  Professional use
  Commercial filters

- Exposure estimation
  · Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): < 0.0003 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 17

- Short title of the exposure scenario
  Professional use
  Aircraft insulation handling

- Exposure estimation
  - Worker (inhalation)
  Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.21 fibres/cm³.
  The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
  The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 18

- **Short title of the exposure scenario**
  - Professional and consumer use
  - Exhaust from vacuum cleaner

- **Exposure estimation**
  - **Worker (inhalation)**
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.0001 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)

  - **Consumer**
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0.0001 fibres/cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 3.4 fibres/cm³ equalling 0.3 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)
Annex: Exposure scenario 19

- Short title of the exposure scenario
  Professional and consumer use
  Indoor air in public buildings

- Exposure estimation
  - Worker (inhalation)
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0 - 0.00166 fibres/ cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 10.1 fibres/cm³ equalling 0.9 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)

  - Consumer
    Estimated fibre concentration in air (reference value(s) from real measurements in practice and calculations): 0 - 0.00166 fibres/ cm³.
    The highest permitted/acceptable inhalative exposition (according to DNEL value) is 3.4 fibres/cm³ equalling 0.3 mg/m³.
    The highest permitted/acceptable inhalative exposition is 1 fibres/cm³. (legal limit value in some EU-countries and the USA)