SAFETY DATA SHEET

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

1.1. Product identifier

   Trade name
   Bitumix Seal, Mix of Komp. A + B (5:1)

   Product no.
   -

   REACH registration number
   Not applicable

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

   Relevant identified uses of the substance or mixture
   For sealing cracks and joints in asphalt and pavement.

   Uses advised against
   -
   The full text of any mentioned and identified use categories are given in section 16

1.3. Details of the supplier of the safety data sheet

   Company and address
   Bitusal Danmark
   Åmosevej 80, Skellingsted
   4440 Mørkøv
   DK
   CVR 36684062
   Tlf: +45 56 26 82 06

   Contact person
   Bjarne Poulsen

   E-mail
   info@bitusal.com

   SDS date
   2015-12-14

   SDS Version
   1.0

1.4. Emergency telephone number

   Use your national or local emergency number
   See section 4 “First aid measures”

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

   Skin Sens. 1; H317
   Resp. Sens. 1; H334
   Carc. 2; H351
   Eye Irrit. 2; H319
   Skin Irrit. 2; H315
   STOT SE 3; H335

   See full text of H-phrases in section 2.2.
According to EC-Regulation 1907/2006 (REACH)

2.2. Label elements

Hazard pictogram(s)

![Exclamation mark]

Signal word
Danger

Hazard statement(s)
May cause an allergic skin reaction. (H317)
May cause allergy or asthma symptoms or breathing difficulties if inhaled. (H334)
Suspected of causing cancer. (H351)
Causes serious eye irritation. (H319)
Causes skin irritation. (H315)
May cause respiratory irritation. (H335)

Safety statement(s)

<table>
<thead>
<tr>
<th>General</th>
<th>If medical advice is needed, have product container or label at hand. (P101). Keep out of reach of children. (P102).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention</td>
<td>Avoid breathing mist/vapours/fume/spray. (P261).</td>
</tr>
<tr>
<td>Response</td>
<td>IF INHALED: Remove person to fresh air and keep comfortable for breathing. (P304+P340).</td>
</tr>
<tr>
<td>Storage</td>
<td>Store l°Cked up. (P405).</td>
</tr>
<tr>
<td>Disposal</td>
<td>Dispose of contents/container to an approved waste disposal plant. (P501).</td>
</tr>
</tbody>
</table>

Identity of the substances primarily responsible for the major health hazards
4,4’-methylenebisphenyl diisocyanate diphenylmethane-4,4’-diisocyanate, o-(p-isocyanatobenzyl)phenyl isocyanate diphenylmethane-2,4’-diisocyanate, Polymeric Diphenylmethane diisocyanate, 2,2’-methylenebisphenyl diisocyanate diphenylmethane-2,2’-diisocyanate

2.3. Other hazards
This product contains substances which are considered or proven to be carcinogenic.

Additional labelling
- Persons already sensitised to — Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. — This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used. —
- Contains 2,2’-methylenebisphenyl diisocyanate diphenylmethane-2,2’-diisocyanate. May produce an allergic reaction.

Additional warnings
Tactile warning.

VOC
- [VOC information]

SECTION 3: Composition/information on ingredients

3.1/3.2. Substances/Mixtures

| NAME: | 4,4’-methylenebisphenyl diisocyanate diphenylmethane-4,4’-diisocyanate |
| IDENTIFICATION NOS.: | CAS-no: 101-68-8 EC-no: 202-966-0 REACH-no: 01-2119457014-47-xxxx Index-no: 615-005-00-9 |
| CONTENT: | 5-10% |
| CLP CLASSIFICATION: | Acute Tox. 4, STOT RE 2, STOT SE 3, Skin Irrit. 2, Eye Irrit. 2, Resp. Sens. 1, Skin Sens. 1, Carc. 2 |
| H315, H317, H319, H332, H334, H335, H351, H373 |
| NOTE: | |

| NAME: | o-(p-isocyanatobenzyl)phenyl isocyanate diphenylmethane-2,4’-diisocyanate |
| IDENTIFICATION NOS.: | CAS-no: 5873-54-1 EC-no: 227-534-9 REACH-no: 01-2119480143-45-xxxx Index-no: 615-005-00-9 |
| CONTENT: | 3-5% |
According to EC-Regulation 1907/2006 (REACH)


NOTE:

NAME: Polymeric Diphenylmethanediisocyanate
IDENTIFICATION NOS.: CAS-no: 9016-87-9
CONTENT: 1-3%


NOTE:

NAME: 2,2'-methylenediphenyl diisocyanate diphenylmethane-2,2'-diisocyanate
IDENTIFICATION NOS.: CAS-no: 2536-05-2 EC-no: 219-799-4 REACH-no: 01-2119927323-42-xxxx Index-no: 615-005-00-9
CONTENT: <1%


NOTE:

NAME: Isophthaloyl,chloride
IDENTIFICATION NOS.: CAS-no: 99-63-8 EC-no: 202-774-7 REACH-no: 01-2119439993-19-xxxx
CONTENT: <1%

CLP CLASSIFICATION: Acute Tox. 3, Acute Tox. 4, Skin Corr. 1A H312, H314, H331

(*) See full text of H-phrases in chapter 16. Occupational exposure limits are listed in section 8, if these are available.
P = Prepolymer isocyanate I = Isocyanate monomer

Other informations
ATEmix(inhale, vapour) > 20
ATEmix(dermal) > 2000
ATEmix(orall) > 2000
Eye Cat. 2 Sum = Sum(Ci/S(G)CLi) = 2.44 - 0
Skin Cat. 2 Sum = Sum(Ci/S(G)CLi) = 2.44 - 3.66

SECTION 4: First aid measures

4.1. Description of first aid measures

General information
In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor, if in doubt about the injured person’s condition or if the symptoms continue. Never give an unconscious person water or similar.

Inhalation
Get the injured person into fresh air. Make sure there is always someone with the injured person. Prevent shock by keeping the injured person warm and calm. If the person stops breathing, give mouth-to-mouth resuscitation. If unconscious, roll the injured person onto side with the top leg bent at both knee and hip. Call an ambulance.

Skin contact
Remove contaminated clothing and shoes at once. Skin that has come in contact with the material must be washed thoroughly with water and soap. Skin cleanser can be used. DO NOT use solvents or thinners.

Eye contact
Remove contact lenses and ensure eyelids are open and apart. Flush eyes with water or saline water(20-30°C) for at least 15 minutes. Seek medical assistance and continue flushing during transport.

Ingestion
In the case of ingestion, contact a doctor immediately and take this safety data sheet or the label from the material with you. If the person is conscious, give them water. DO NOT try to induce vomiting, unless this is recommended by a doctor. Hold head facing down so that no vomit runs back into the mouth and throat. Prevent shock by keeping the injured person warm and calm. Give mouth-to-mouth resuscitation if breathing stops. If unconscious, roll the injured person onto side with the top leg bent at both knee and hip. Call an ambulance.

Burns
Not applicable

4.2. Most important symptoms and effects, both acute and delayed
Carcinogenic effects: This product contains substances which are considered or proven to be carcinogenic. The danger may lie in inhalation, skin contact or ingestion.

Bitumix Seal, Mix of Komp. A + B (5:1)
According to EC-Regulation 1907/2006 (REACH)

Sensitivity effects: This product contains substances which can give an allergic reaction on contact with skin. The allergic reaction will typically set in 12-72 hours after exposure as the substance penetrates the skin and reacts with proteins in the outer skin. The body's immune system sees the chemically changed protein as a foreign body and will try to destroy it.

Sensitivity effects: This product contains substances which can give an allergic reaction when inhaled. The allergic reaction allergy will typically set in an hour after exposure and give an inflammatory reaction in the lungs.

Irritation effects: This product contains substances which cause irritation to skin and eyes, or when inhaled. Contact with locally irritative substances can cause the area of contact to be more prone to absorb damaging substances such as allergens.

4.3. Indication of any immediate medical attention and special treatment needed

No special

Information to medics
Bring this safety data sheet.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Recommended: alcohol-resistant foam, carbonic acid, powder, water mist. Water jets should not be used, since they can spread the fire.

5.2. Special hazards arising from the substance or mixture
If the product is exposed to high temperatures, as in the case of fire, dangerous catabolic substances are produced. These are: Nitrogen oxides. Carbon oxides. Fire will result in thick black smoke. Exposure to catabolic products can damage your health. Fire fighters should use proper protection gear. Closed containers, which are exposed to fire, should be cooled with water. Do not let fire-extinguishing water run into sewers and other water courses.

5.3. Advice for firefighters
Wear self-contained breathing apparatus and protective clothing to prevent contact.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Avoid inhalation of vapours from waste material. Avoid direct contact with spilled substances.

6.2. Environmental precautions
No specific requirements.

6.3. Methods and material for containment and cleaning up
Use sand, sawdust, earth, vermiculite, diatomaceous earth to contain and collect non-combustible absorbent materials and place in container for disposal, according to local regulations. Cleaning should be done as far as possible using normal cleaning agents. Solvents should be avoided.

6.4. Reference to other sections
See section on "Disposal considerations " with regard to the handling of waste. See section on 'Exposure controls/personal protection' for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
See section on 'Exposure controls/personal protection' for information on personal protection. Avoid direct contact with the product.

7.2. Conditions for safe storage, including any incompatibilities
Always store in containers of the same material as the original.

Storage temperature
No data available.

7.3. Specific end use(s)
This product should only be used for applications described in Section 1.2
According to EC-Regulation 1907/2006 (REACH)

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL

Polymeric Diphenylmethanediisocyanate
Long-term exposure limit (8-hour TWA reference period): - ppm | 0,02 mg/m³
Short-term exposure limit (15-minute reference period): - ppm | mg/m³

O-(p-isocyanatobenzyl)phenyl isocyanate diphenylmethane-2,...
Long-term exposure limit (8-hour TWA reference period): - ppm | 0,02 mg/m³
Short-term exposure limit (15-minute reference period): - ppm | 0,07 mg/m³

4,4'-methylene diphenyl disocyanate diphenylmethane-4,4'-d...
Long-term exposure limit (8-hour TWA reference period): - ppm | 0,02 mg/m³
Short-term exposure limit (15-minute reference period): - ppm | mg/m³

DNEL / PNEC

8.2. Exposure controls

Compliance with the stated exposure limits values should be checked on a regular basis.

General recommendations
Observe general occupational hygiene.

Exposure scenarios
If there is an appendix to this safety data sheet, the indicated exposure scenarios must be complied.

Exposure limits
Trade users are covered by the rules of the working environment legislation on maximum concentrations for exposure. See work hygiene threshold values above.

Appropriate technical measures
Airborne gas and dust concentrations must be kept as low as possible and below the current threshold values (see above). Use for example an exhaust system if the normal air flow in the work room is not sufficient. Make sure that eyewash and emergency showers are clearly marked.

Hygiene measures
Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face.

Measures to avoid environmental exposure
Keep damming materials near the workplace. If possible collect spillage during work.

Individual protection measures, such as personal protective equipment

Generally
Use only CE marked protective equipment.

Respiratory Equipment
If the ventilation at the work place is not sufficient, use a half or whole mask with an appropriate filter or an air-supplied respiratory protector. The choice depends on the concrete work situation and how long you will be using the product.

Skin protection
Special work clothing should be used. When working with this product for a long period of time, use a protective suit.

Hand protection
Use protective gloves. The concrete work situation is not known. Contact the suppliers of the gloves for help on the glove type. Please note that elastic gloves stretch when used. The thickness of the gloves, and
According to EC-Regulation 1907/2006 (REACH)

therefore their penetration time, will be reduced. Moreover, the temperature of the glove in use is about 35°C, while the standard test, EN 374-3, is done at 23°C. The penetration time is therefore reduced by a factor of 3.

**Eye protection**
Use safety glasses with a side shield.

**SECTION 9: Physical and chemical properties**

<table>
<thead>
<tr>
<th>Form</th>
<th>Colour</th>
<th>Odour</th>
<th>pH</th>
<th>Viscosity</th>
<th>Density (g/cm³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Phase changes**
- Melting point (°C)
- Boiling point (°C)
- Vapour pressure (mm Hg)

**Data on fire and explosion hazards**
- Flashpoint (°C)
- Ignition (°C)
- Self ignition (°C)
- Explosion limits (Vol %)
- Oxidizing properties

**Solubility**
- Solubility in water
- n-octanol/water coefficient
- Soluble

<table>
<thead>
<tr>
<th>Solubility in fat</th>
<th>Additional information</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**
No data available

**10.2. Chemical stability**
Hardening time: ca, 0,3.

**10.3. Possibility of hazardous reactions**
No special

**10.4. Conditions to avoid**
Do not expose to heat (e.g. sunlight), because it can lead to excess pressure.

**10.5. Incompatible materials**
Strong acids, strong bases, strong oxidizing agents, and strong reductants agents.

**10.6. Hazardous decomposition products**
The product is not degraded when used as specified in section 1.

**SECTION 11: Toxicological information**

<table>
<thead>
<tr>
<th>11.1. Information on toxicological effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute toxicity</strong></td>
</tr>
<tr>
<td>Substance: Polymeric Diphenylmethanediis...</td>
</tr>
<tr>
<td>Species: Rat</td>
</tr>
<tr>
<td>Test: LC50</td>
</tr>
<tr>
<td>Route of exposure: Inhalation</td>
</tr>
<tr>
<td>Result: 490 mg/m3/4H</td>
</tr>
<tr>
<td>Substance: 4,4'-methylenediphenyl diisoc...</td>
</tr>
<tr>
<td>Species: Rat</td>
</tr>
<tr>
<td>Test: LD50</td>
</tr>
<tr>
<td>Route of exposure: Oral</td>
</tr>
<tr>
<td>Result: 31600 mg/kg</td>
</tr>
<tr>
<td>Substance: 4,4'-methylenediphenyl diisoc...</td>
</tr>
<tr>
<td>Species: Rat</td>
</tr>
<tr>
<td>Test: LC50</td>
</tr>
<tr>
<td>Route of exposure: Inhalation</td>
</tr>
<tr>
<td>Result: 369 mg/m3/4H</td>
</tr>
</tbody>
</table>

**Skin corrosion/irritation**
Causes skin irritation.

**Serious eye damage/irritation**
Causes serious eye irritation.

**Respiratory or skin sensitisation**
May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
According to EC-Regulation 1907/2006 (REACH)

Germ cell mutagenicity
No data available.

Carcinogenicity
Suspected of causing cancer.

Reproductive toxicity
No data available.

STOT-single exposure
May cause respiratory irritation.

STOT-repeated exposure
No data available.

Aspiration hazard
No data available.

Long term effects
Carcinogenic effects: This product contains substances which are considered or proven to be carcinogenic. The danger may lie in inhalation, skin contact or ingestion.

Sensitivity effects: This product contains substances which can give an allergic reaction on contact with skin. The allergic reaction will typically set in 12-72 hours after exposure as the substance penetrates the skin and reacts with proteins in the outer skin. The body's immune system sees the chemically changed protein as a foreign body and will try to destroy it.

Sensitivity effects: This product contains substances which can give an allergic reaction when inhaled. The allergic reaction allergy will typically set in an hour after exposure and give an inflammatory reaction in the lungs.

Irritation effects: This product contains substances which cause irritation to skin and eyes, or when inhaled. Contact with locally irritative substances can cause the area of contact to be more prone to absorb damaging substances such as allergens.

SECTION 12: Ecological information

<table>
<thead>
<tr>
<th>Substance</th>
<th>Species</th>
<th>Test</th>
<th>Test duration</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>o-(p-isocyanatobenzyl)phenyl ...</td>
<td>Fish</td>
<td>LC50</td>
<td>96 h</td>
<td>1000 mg/L</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
Substance
No data available.

Biodegradability
Test
Result

12.3. Bioaccumulative potential
Substance
No data available.

Potential bioaccumulation
LogPow
BFC

12.4. Mobility in soil
No data available

12.5. Results of PBT and vPvB assessment
No data available

12.6. Other adverse effects
No special

SECTION 13: Disposal considerations

13.1. Waste treatment methods
The product is covered by the regulations on dangerous waste.

Waste
EWC code

Specific labelling
-
According to EC-Regulation 1907/2006 (REACH)

**Contaminated packing**
Packaging which contains leftovers from the product must be disposed of in the same way as the product.

**SECTION 14: Transport information**

Not listed as dangerous goods under ADR and IMDG regulations.

14.1 – 14.4
ADR/RID
14.1. UN number
14.2. UN proper shipping name
14.3. Transport hazard class(es)
14.4. Packing group
Notes
Tunnel restriction code

IMDG
UN-no.
Proper Shipping Name
Class
PG*
EmS
MP**
Hazardous constituent

IATA/ICAO
UN-no.
Proper Shipping Name
Class
PG*

14.5. Environmental hazards

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
No data available

(*) Packing group
(**) Marine pollutant

**SECTION 15: Regulatory information**

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

**Restrictions for application**
People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Pregnant and nursing women must not be exposed to the effects of this product. The risk, and possible technical precautions or design of the workplace to avoid such risk, must therefore be evaluated.

**Demands for specific education**
The user of this product must have taken special training in working with polyurethane and epoxy products.

**Additional information**

**Sources**
EC Regulation 1272/2008 (CLP).
EC regulation 1907/2006 (REACH).
According to EC-Regulation 1907/2006 (REACH)

15.2. Chemical safety assessment
No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3
H312 - Harmful in contact with skin.
H314 - Causes severe skin burns and eye damage.
H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H331 - Toxic if inhaled.
H332 - Harmful if inhaled.
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 - May cause respiratory irritation.
H351 - Suspected of causing cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.

The full text of identified uses as mentioned in section 1

Other symbols mentioned in section 2

Other
It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
A change (in proportion to the last essential change (first cipher in SDS version)) is marked with a blue triangle.

The safety data sheet is validated by
pipe/CHYMEIA
Date of last essential change
(First cipher in SDS version)

Date of last minor change
(Last cipher in SDS version)