1. **Preparation designation, producer:**

1.1 Preparation designation:

1.1.1 Market designation of preparation: **Hvězda, složka AB (Czech)**
**Hvezda, component AB (English)**

1.1.2 Recommended use:
Hvezda, component AB should be mixed with the Hvezda, komponent CC to prepare applicable form of the Hvezda mixture.

1.2 Producer:

1.2.1 Company: **MPD plus spol. s r. o.**

Headquarters: **Nábřeži Dr. Beneše 2307, 269 01 Rakovník, Czech Republic**

BIN (Business Identification Number): 47549637
Phone: 313513961 Fax: 313512834

1.3 Emergency information in Czech Republic:

1.3.1 Emergency phone number (in Czech language, non-stop):
(++)420)224919293, (++)420)224915402, (++)420)224914575

1.3.2 Address: **Department of Occupational Diseases, Toxicological Information Centre, Na Bojišti 1, 128 08 Praha 2, Czech republic**

2. **Preparation composition:**

Preparation contents alkalized mixtures of cationic and nonionic tenzides and of supporting chemicals.

2.2 Preparation contents dangerous substances:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Content (max. % of mass)</th>
<th>CAS Number</th>
<th>EINECS</th>
<th>Index No. ES</th>
<th>Substance category of danger</th>
<th>R- and S-phrases of substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>4</td>
<td>1310-73-2</td>
<td>215-185-5</td>
<td>011-002-00-6</td>
<td>C</td>
<td>R35 S1/2-26-37/39-45</td>
</tr>
<tr>
<td>alcohol iso-C13 poly(9)ethoxylated</td>
<td>3</td>
<td>943-30-5</td>
<td>not assigned, polymer</td>
<td>not assigned</td>
<td>Xi</td>
<td></td>
</tr>
</tbody>
</table>

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**MATERIAL SAFETY DATA SHEET**

according regulation No. 231/2004 Coll. of Code of Law of Czech Republic

Preparation designation, Czech: **Hvězda, složka AB**
Preparation designation, English: **Hvezda, component AB**

Date of issue in Czech Republic: 2 Jan 2007  
Date of translation: 24 Oct 2008  
Revision: Preliminary translation
3. **Danger properties of the preparation**

3.1 Component AB is categorized:

C – corrosive, N – dangerous for the environment

Applicable form prepared by mixing 4 volume pieces of the component AB and 1 volume piece of component CC is categorized:

C – corrosive, N – dangerous for the environment

3.2 The most significant impacts on the human health due to use of the preparation:

R 34 Causes burns. R 41 Risk of serious damage to eyes.

The most significant impacts on the environment due to use of the preparation:

R 50 Very toxic to aquatic organisms

4. **First aid instructions**

In case of ingestion or in contact with eyes, immediate help is necessary.

4.1 General instruction:

Eating, drinking and smoking are prohibited while working with the preparation. Keep standard hygienic rules. In case of unconsciousness, keep the affected person in stabilized position lying by the side with head slightly bent backward, and search for medical help. Protect him/her from cold. In case of unconsciousness, do not feed affected person via mouth anyway. In case of serious health troubles, unconsciousness or in case of unusual symptoms, seek for medical help and show the doctor this material data safety sheet.

4.2 Inhalation:

Transport affected person to fresh air. If symptoms persist, search for medical help.

4.3 Exposition to skin:

Take off all contaminated cloth. Affected skin should be washed with soap and sufficient amount of water. Treat the washed area with reparatory ointment. The contaminated cloth must be laundered before next use. If skin irritation persists, search for medical help.

4.4 Exposition to eyes:

Wash eyes with stream of tepid water at least 15 minutes. Search for medical help.

4.5 Ingestion:

Assure quiet conditions for the affected person. Clean mouth with water. Then, drink cca 0,5 liter of water. Do not invoke vomit. Search for medical help. Never feed unconscious persons via mouth.

4.6 More info:

Possible delayed and/or long-term symptoms are especially irritation or damage of skin or mucosa.

5. **Fire extinguishing**
The preparation is not combustible and it does not support combustion. Fire extinguishing should be performed according the features of the fire, present combustible materials, conditions in surroundings etc.

5.1 Possible extinguishing media:

Extinguishing with CO₂ (carbon-dioxid), dry chemicals, dust, sand, foam or water fog.

5.2 Non-recommended extinguishing media (that must not be used according safety measures)

None (there are no special requirements on the extinguishing media)

5.3 Specific risk:

Exposition to heat can release toxic gases and smoke containing nitrogen oxides, ammonia, chlorine, chlorine oxides (NOₓ, NH₃, Cl₂, ClOₓ).

5.4 Protective tools for fire-fighting persons:

Appropriate respiratory mask. More, the face and skin must be protected from spashed liquids – more info in chapter 7 and 8.

5.5 More info:

None.

6. Accident with release to the environment

6.1 Civil persons protection

Prevent contact with skin and eyes. Use personal protective means if necessary. Consider chapter 7 and 8 if necessary.

6.2 Measures for the environment protection:

Prevent contamination of soil. Prevent release into waters in landscape, underground water or into drainage.

6.3 Recommended decontamination and remediation:

Lager volumes of preparation should be pumped to spare vessels. Rests of preparation should be covered and removed with inert sorbent (sand, sawdust, cloth, soil etc.), disposed to closed vessels and delivered to authorized service for treatment. After that, wash the contaminated areas with large volume of water which is driven to sewage processing plant.

6.4 More info:

If preparation leaks to landscape water or to the sewage, contact rescue bodies and/or bodies dealing with environment protection.

7. Instruction for handling and storage

7.1 Handling:

7.1.1 Preventive measures for safety handling:

Prevent from contact with skin and eyes. Use personal protective means according the chapter 8. Do not eat, drink and smoke while handling the preparation. Wash hands while stop the work with preparation.

7.1.2 Preventive measures for environment protection:

Prevent leakages to the environment – to soil, landscape and underground water, to drainage or sewage.
7.1.3 Special requirements for handling:

None.

7.2 Storage

7.2.1 Conditions of safe storage

Preparation should be stored in facilities protected from weather and from direct sun-shine. Storage temperature should range from 5 to 25°C. Storage should be equipped with leak-proof floor and, where stored huge amounts of preparation, separate drainage and reservoir. To ensure health protection of staff, wash-basin and sufficient water supply must be available. Means for remediation of releases must be available – sorbent with appropriate tools (brush, shovel) and vessel for waste disposal.

7.2.2 Packages

Preparation should be stored in original closed vessels which are not damaged. If necessary, use another closed PE (polyethylene) ducts, cans etc. designed for storage of liquid chemicals, compatible with packing group III. No volume limits were set for storage.

8. Restrictions on intake or exposition to persons

8.1 Exposition limits according regulation No. NV 178/2001 Coll. of Code of Law of Czech Republic (PEL = “acceptable exposition limit”, NPK-P = “the highest acceptable concentration”)

<table>
<thead>
<tr>
<th>Substance</th>
<th>PEL</th>
<th>NPK-P</th>
</tr>
</thead>
<tbody>
<tr>
<td>sodium hydroxide</td>
<td>1 mg.m(^{-3})</td>
<td>2 mg.m(^{-3})</td>
</tr>
</tbody>
</table>

8.2 Reduction of exposition

8.2.1 Reduction of occupational exposition

Prevent from skin contamination with concentrated preparation. Prevent from contact with eyes. While working with preparation, wear eyes/face protection (protective glasses or shield).

8.2.1.1 Protection of respiratory system:

None – under standard circumstances.

8.2.1.2 Protection of hands:

Protective gloves (latex, PVC, neoprene etc.)

8.2.1.3 Protection of eyes:

Wear eyes/face protection (protective glasses or shield)

8.2.1.4 Protection of skin

Protective pinafore or other suitable dress, appropriate shoes, cloth with long sleeves.

8.2.2 Protection of the environment

Prevent from leakages to landscape and underground water. Waste liquids after use of the preparation drive onto sewage processing plant compatibly with its operational capacity.

9. Physical and chemical properties

9.1 Phase: Liquid (under usual conditions)
Appearance: Transparent, slightly opal liquid, colorless or with yellowish flame.
Smell: Characteristic, can remind tree resin.

9.2 pH of preparation 12,5
Boiling temperature cca 100°C
Ignition point None – non combustible
Combustibility No
Explosive No
Oxidizing properties None (component AB)
Vapor pressure Not measured
Density (10°C) 1,04 g.cm⁻³
Solubility in water Soluble
Solubility in grease Not measured
Distribution coefficient n-oktanol/water Not measured
Viscosity (10°C) 2,1 mPa.s
Vapor density Not measured
Rate of vaporization Not measured
9.3 Melting point range of -5°C to 0°C (hysteresis)

10. Chemical stability and reactivity
The preparation, component AB, is chemically stable when stored and handled according this material safety data sheet, there are no fast or dangerous changes of that. Application mixture prepared by appropriate mixing of the component AB and the component CC looses its disinfection and decontamination properties within several days.
Exposition of some coatings (paintings) or plastics (especially the PET) to the preparation (either component AB or the application mixture) longer than 1 hour can cause their damage. Contact with aluminium can produce explosive gas hydrogen and can corrode it.
Must not be mixed with another chemical individuals or preparations.

11. Toxicology
11.1 Acute toxicity of preparation:
No data concerning whole preparation are available, only the data of contained chemicals are known.
Acute toxicity of contained chemicals:
Alkyl-dimethyl-benzyl-amonim chloride (different authors):
LD50, oral, rat: 240 – 550 mg.kg⁻¹
Ethoxylated iso-tridekan-1-ol:
LD50, oral, rat: 1000 mg.kg⁻¹
LD50, oral, mouse: 1170 mg.kg⁻¹
11.2 Sub-chronic or chronic toxicity of preparation:
Not known. According found contemporary scientific knowledge, health damage is not expectable if used properly.
Sensitization was not found / is not expected.
Kancerogenity was not found / is not expected.
Mutagenity was not found / is not expected.
Impaired fertility was not found / is not expected according known information.

12. Ecologic data

12.1 Ecotoxicity

Toxicity to aquatic organisms:
- **Fish:** \(LC_{50}, 96\) hour: not evaluated
- **Daphnia (D. magna Straus):** \(EC_{50}, 24\) hour: 0.0025 mg/l
  \(EC_{50}, 48\) hour: 0.0012 mg/l
- **Weed (Scenedesmus subspicatus Chodat):** \(IC_{50}, 72\) hour: 0.014 mg/l

Toxicity to soil organisms: not evaluated
Toxicity to birds: not evaluated
Toxicity to bees: not evaluated

Toxicita to plants – inhibition of germination of 50% of seed:
- **Sinapis alba:** cca 1 ml/l
- **Pisum sativum:** cca 15 ml/l
- **Vicia faba:** cca 5 ml/l

12.2 Mobility

Mobility of the preparation or of the contained chemicals in the environment was not studied. Unusually high mobility is not supposed.

Surface tension
- **Hvezda, application mixture:** 33.5 mN/m

12.3 Persistency and degradability:

Biodegradability of the preparation was succesfully checker according the ISO 10707 (OECD 301 D equivalent).

Persistency and degradability of contained dangerous chemicals:
- **Sodium hydroxide:**
  Danger is decreased or eliminated by mixing with water and/or by neutralization with mineral components of sediments, at the sewage processing plant.

- **benzyl-C12-16-alkyldimethyl, chloride:**
  Biodegradable. At the sewage processing plant, it is neutralized by reaction with anion-active tensides and transforms itself into sediments.

- **alcohol iso-C13 poly(9)ethoxylated**
  Biodegradable, compatible with European regulation ES 648/2004 about tenside degradability.

12.4 Potential for bioaccumulation
13. Waste handling and disposal

13.1 Rest of preparation

Rest of preparation can be disposed of by controlled driving it into the sewage processing plant, with respect to the plant capacity.

13.2 Contaminated packages (cans, barrels etc.)

The packages must be empty. When washed properly, they can be re-used. Otherwise, the packages are disposed of according valid regulations in the field of waste management. Preferably, the packages should be disposed of as separated waste. Producer of the preparation has paid a waste duty on the packages to the company Eko-kom (in Czech Republic).

13.3 Other info:

In territory of Czech Republic, wastes are disposed of according the law No. 185/2001 Coll. of Code of Law of Czech Republic and subsequent ones.

14. Transport information

14.1 Road transport undergoes international treaty ADR:

UN Number: 1760
Class: 8
Name and description: CORROSIVE LIQUID, N.O.S.
(sodium hydroxide 4%)
Packing group: III

14.2 Railway transport – was not evaluated

14.3 Air transport – was not evaluated

14.4 Marine and river transport – was not evaluated

15. Legal and related information

Relevant R- and S- phrases, as well as the warning symbols, written in the parts No. 3 and 16, were assigned according the regulation No. 232/2004 and No. 369/2005 Coll. of Code of Law of Czech Republic, with respect to Commission directive 2001/59/EC

Indication of danger: C, corrosive

R 34 Causes burns.
S 17 Keep away from combustible materials.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 28 After contact with skin, wash immediately with plenty of water.
S36/37/39 Wear suitable protective clothing, gloves and eyes / face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show where label where possibly)
S 61 Avoid release to the environment. Refer to special instructions / safety data sheets.

Obligatory information on the label
The Hvezda, component AB contain 10 g of alkyldimethylbenzylamonim chloride in 100 g of the preparation. Contains less then 5% of sodium hydroxide and less then 5% of non-ionic tenside. Storage: in original package, protected from weather, in the temperature range of 5 to 25°C. Non-exploited rests should be disposed of as a dangerous waste (code N 200129). Application mixture and/or minor contamination when manipulated can be disposed of by diluting in huge amount of water and driving into sewage. The package (can) can, when properly washed, can be disposed of in separated waste.

16. Other info
16.1 List of all R- and S- phrases mentioned in parts 2 and 3 in connection to the preparation Hvezda, component AB:

- R 22 Harmful if swallowed.
- R 34 Causes burns.
- R 35 Causes severe burns.
- R 41 Risk of serious damage to eyes.
- R 50 Very toxic to aquatic organisms.
- S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S 36 Wear suitable protective clothing.
- S 37/39 Wear suitable gloves and eyes / face protection.
- S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)
- S 61 Avoid release to the environment. Refer to special instructions / safety data sheets.

List of relevant legislative documents
- Regulations No. 232/2004 and No. 369/2005 Coll. of Code of Law of Czech Republic (categorization, packaging and labeling of dangerous chemical substances)
- Commission directive 2001/59/EC
- Law No. 185/2001 Coll. and subsequent of Code of Law of Czech Republic (so called Waste Law)
MATERIAL SAFETY DATA SHEET
according regulation No. 231/2004 Coll. of Code of Law of Czech Republic

Preparation designation, Czech: Hvězda, složka AB
Preparation designation, English: Hvezda, component AB

Date of issue in Czech Republic: 2 Jan 2007 Revision: ———
Date of translation: 24 Oct 2008 Revision: Preliminary translation

- Law No. 120/2002 Coll. of Code of Law of Czech Republic (biocides)
- Regulation No. NV 178/2001 Coll. of Code of Law of Czech Republic (protection of occupational health)
- Regulation No. 432/2003 Coll. of Code of Law of Czech Republic
- Law No. 185/2001 Coll. and subsequent of Code of Law of Czech Republic (wastes)
- International treaty ADR (published in Czech Republic under No. 33/2005 of Collection of International Treaties

Claim
This Material Safety Data Sheet contains information necessary to set safety measures and to protect workers health when working with the preparation, as well as to protect environment. The presented information is appropriate to contemporary scientific knowledge and experience, and it is compatible to valid law, as producer is conscious of. The presented information cannot be considered as guarantee of suitability at any particular use of the preparation.