Safety data sheet
according to 1907/2006/EC, Article 31


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

1.1 Product identifier
Reagent for water analysis

1.2 Details of the supplier of the safety data sheet
Supplier:
YSI
1725 Brannum Lane
Yellow Springs, OH 45387
USA
tel: +1 937-767-7241

Informing department:
MSDSinfo@ysi.com

Emergency information:
Chemtrec toll free (USA and Canada): (800) 424-9300
Chemtrec International Telephone Number: 001 703-527-3887 (Collect Calls Accepted)

2 Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS02 flame

Flam. Sol. 2  H228  Flammable solid.

GHS07

Skin Sens. 1  H317  May cause an allergic skin reaction.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

Xi; Sensitising
R43:  May cause sensitisation by skin contact.

F; Highly flammable
R11:  Highly flammable.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.

Hazard pictograms GHS02, GHS07
Signal word Warning

Hazard-determining components of labelling:
methenamine

(Contd. on page 2)
Safety data sheet according to 1907/2006/EC, Article 31

Product name: Vario Hexamine F20 ml

· Hazard statements
  H228 Flammable solid.
  H317 May cause an allergic skin reaction.

· Precautionary statements
  P280 Wear protective gloves.
  P302+P352 IF ON SKIN: Wash with plenty of soap and water.
  P363 Wash contaminated clothing before reuse.
  P370+P378 In case of fire: Use for extinction: CO2, powder or water spray.
  P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· 3 Composition/information on ingredients

  · 3.2 Chemical characterization: Mixtures
    · Dangerous components:
      | CAS: 100-97-0 | methenamine | > 98% |
      | EINECS: 202-905-8 | Xi R43; F R11 | Flm. Sol. 2, H228; Skin Sens. 1, H317 |
      | Index number: 612-101-00-2 | |

  · REACH - Pre-registered substances
    All components are REACH pre-registered.

  · Additional information
    For the wording of the listed risk phrases refer to section 16.

· 4 First aid measures

  · 4.1 Description of first aid measures
    · General information
      Instantly remove any clothing soiled by the product.
    · After inhalation
      Supply fresh air or oxygen; call for doctor.
    · After skin contact
      Instantly rinse with water.
      Seek medical treatment.
    · After eye contact
      Rinse opened eye for several minutes under running water (at least 15 minutes). If symptoms persist, consult doctor.
    · After swallowing
      Rinse out mouth and then drink 1-2 glasses of water.
      Seek medical treatment.

  · 4.2 Most important symptoms and effects, both acute and delayed
    allergic reactions
    after inhalation:
    breathing difficulty
    coughing
    asthma attacks
    after swallowing:
    sickness
    vomiting
    cramps
    mucous membrane irritation
    gastric or intestinal trouble
    · Danger risk of skin sensitization
    · Indication of any immediate medical attention and special treatment needed
      No further relevant information available.

· 5 Firefighting measures

  · 5.1 Extinguishing media
    · Suitable extinguishing agents
      Foam

(Contd. of page 1)

(Contd. of page 3)
Product name: Vario Hexamine F20 ml

- Alcohol-resistant foam
- Fire-extinguishing powder
- Carbon dioxide (CO2)

5.2 Special hazards arising from the substance or mixture
Can form explosive gas-air mixtures.
Can be released in case of fire:
- Nitrogen oxides (NOx)
- Formaldehyde
- Hydrogen cyanide (HCN)
- Nitrous gases
- Ammonia (NH3)

5.3 Advice for firefighters
- Protective equipment:
  - Wear full protective suit.
  - Wear self-contained breathing apparatus.
- Additional information
  - Cool endangered containers with water spray jet.
  - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
  - Collect contaminated fire fighting water separately. It must not enter drains.

6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
- Wear protective equipment. Keep unprotected persons away.
- Avoid causing dust.
- Use breathing protection against the effects of fumes/dust/aerosol.

6.2 Environmental precautions:
- Do not allow product to reach sewage system or water bodies.
- Damp down gases/fumes/haze with water spray jet.

6.3 Methods and material for containment and cleaning up:
- Dispose of contaminated material as waste according to item 13.
- Ensure adequate ventilation.
- Collect mechanically.

6.4 Reference to other sections
- See Section 8 for information on personal protection equipment.

7 Handling and storage

7.1 Precautions for safe handling
- Thorough dedusting.
- Work only in fume cupboard.
- Use only in well ventilated areas.

7.2 Conditions for safe storage, including any incompatibilities

7.2.1 Requirements to be met by storerooms and containers:
- Store in cool location.

7.2.2 Information about storage in one common storage facility:
- Do not store together with acids.
- Store away from oxidizing agents.
Product name: Vario Hexamine F20 ml

- Further information about storage conditions:
  Keep container tightly sealed.
  Store in cool, dry conditions in well sealed containers.
  Store under dry conditions.
  Protect from humidity and keep away from water.
  Protect from the effects of light.
  This product is hygroscopic.
- Recommended storage temperature: 20°C +/- 5°C
- Storage class 4.1B
- 7.3 Specific end use(s) No further relevant information available.

* 8 Exposure controls/personal protection

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

  8.1 Control parameters

- Components with limit values that require monitoring at the workplace:

<table>
<thead>
<tr>
<th>Component</th>
<th>Limit Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methenamine</td>
<td>5 mg/m³</td>
</tr>
<tr>
<td>OEL (Sweden)</td>
<td>100-97-0</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the compilation were used as basis.

- 8.2 Exposure controls

- Personal protective equipment

- General protective and hygienic measures
  Keep away from foodstuffs, beverages and food.
  Take off immediately all contaminated clothing
  Wash hands during breaks and at the end of the work.
  Do not eat, drink or smoke while working.

- Breathing equipment: Use breathing protection against the effects of fumes/dust/aerosol.
- Recommended filter device for short term use: Combination filter A-P2
- Protection of hands: After use of gloves apply skin-cleaning agents and skin cosmetics.
- Material of gloves
  nitrile rubber, NBR
  Recommended thickness of the material: ≥ 0.11 mm
- Penetration time of glove material
  Value for the permeation: Level ≥ 1 (>10 min)
  The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection: Safety glasses
- Body protection: Protective work clothing.

* 9 Physical and chemical properties

- 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Form</td>
<td>Powder</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>Amine-like</td>
</tr>
<tr>
<td>pH-value (20 g/l) at 20°C</td>
<td>8.5</td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>280, Subl.°C</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

(Contd. of page 5)
Product name: Vario Hexamine F20 ml

10 Stability and reactivity

- Reactivity
  - Thermal decomposition / conditions to be avoided: To avoid thermal decomposition do not overheat.
  - Possibility of hazardous reactions
    - with nitric acid, acetic anhydride
    - Reacts with metals forming hydrogen (→ Explosive!)
    - Strong exothermic reaction with acids
    - Reacts with halogenated compounds
    - The product is not capable of dust explosion in the form supplied; enrichment with fine dust causes risk of dust explosion
    - Corrodes aluminium
  - Conditions to avoid: No further relevant information available.
  - Incompatible materials:
    - acids
    - peroxides
    - halogenated hydrocarbons
    - iodide
    - oxidizing agents
  - Hazardous decomposition products:
    - formaldehyde
      see chapter 5

11 Toxicological information

- 11.1 Information on toxicological effects
  - Acute toxicity:
    Quantitative data on the toxicity of the preparation are not available.
    The following statements refer to the individual components.

  - LD/LC50 values that are relevant for classification:
    100-97-0 methenamine
    | Oral LD50 | Intravenous LD50 |
    | CAD | AEIC | 9200 mg/kg (rat) | 9200 mg/kg (rat) |
    | 9200 mg/kg (rat) | 9200 mg/kg (rat) | (IUCLID) |
Product name: Vario Hexamine F20 ml

- **Primary irritant effect:**
  - on the skin: temporary erythema possible
  - on the eye: slight irritations possible
  - Sensitization: Sensitization possible by skin contact.
  - Experience with humans: Can cause kidney damages.

- **Additional toxicological information:**
  The product shows the following dangers according to the calculation method of the General EC Classification Guidelines for Preparations as issued in the latest version:
  - Irritant
  - CMR effects (carcinogenity, mutagenicity and toxicity for reproduction) no data available

* **12 Ecological information**

  - 12.1 Toxicity
    - **Aquatic toxicity:**
      100-97-0 methenamine
      - EC50: 36 mg/l/48h (Daphnia magna) (IUCLID)
      - LC50: 49.8 mg/l/96h (Pimephales promelas)
      - Toxicity EC10: 5 g/l (fish)
      - Toxicity ECo: 10 g/l/48h (Daphnia magna)

  - 12.2 Persistence and degradability
    No further relevant information available.

  - 12.3 Bioaccumulative potential
    Does not accumulate in organisms

  - 12.4 Mobility in soil
    No further relevant information available.

  - 12.5 Results of PBT and vPvB assessment
    no data available

  - 12.6 Other adverse effects
    No further relevant information available.

* **13 Disposal considerations**

  - 13.1 Waste treatment methods
    - **Recommendation**
      Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Hand over to disposers of hazardous waste.
Product name: Vario Hexamine F20 ml

**European waste catalogue**

16 05 06 laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals

**Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleaning agent:** Water, if necessary with cleaning agent.

### 14 Transport information

#### 14.1 UN-Number
- ADR, IMDG, IATA UN1328

#### 14.2 UN proper shipping name
- ADR 1328 HEXAMETHYLENETETRAMINE
- IMDG, IATA HEXAMETHYLENETETRAMINE

#### 14.3 Transport hazard class(es)
- **ADR**
  - **Class** 4.1 (F1) Flammable solids, self-reactive substances and solid desensitised explosives.
  - **Label** 4.1

- **IMDG, IATA**
  - **Class** 4.1 Flammable solids, self-reactive substances and solid desensitised explosives.
  - **Label** 4.1

#### 14.4 Packing group
- ADR, IMDG, IATA III

#### 14.5 Environmental hazards:
- **Marine pollutant:** No

#### 14.6 Special precautions for user
- **Warning:** Flammable solids, self-reactive substances and solid desensitised explosives.
- **Kemler Number:** 40
- **EMS Number:** F-A,S-G

#### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
- **Not applicable.**

#### Transport/Additional information:
- **ADR**
  - **Limited quantities (LQ)** 5 kg
  - **Tunnel restriction code** E
- **UN "Model Regulation":** UN1328, HEXAMETHYLENETETRAMINE, 4.1, III

(Contd. on page 8)
Product name: Vario Hexamine F20 ml

*15 Regulatory information

- 15.4 Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations

Information about limitation of use:
Employment restrictions concerning young persons must be observed.
Observe employment restrictions for pregnant and nursing mothers according to the 'mother protection guideline' (92/85/EEC).

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

*16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- Relevant phrases
  H228 Flammable solid.
  H317 May cause an allergic skin reaction.
  R11 Highly flammable.
  R43 May cause sensitisation by skin contact.

- Abbreviations and acronyms:
  EC50: effective concentration, 50 percent (in vivo)
  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
  ICAO: International Civil Aviation Organization
  GHS: Globally Harmonized System of Classification and Labelling of Chemicals
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent

- Sources
  IUCLID (International Uniform Chemical Information Database)
  International Chemical Safety Cards (ICSCs)
  Data arise from reference works and literature.

* Data compared to the previous version altered.