Kovacs’ Reagent

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Identification
Kovacs’ Reagent

1.2 Relevant identified uses of the substance or mixture and uses advised against
In vitro laboratory use

1.3 Details of the supplier of the safety data sheet
Rosco Diagnostica A/S
Taastrupgaardsvej 30
DK-2630 Taastrup
Denmark
Tel: (+45) 43 99 33 77
Fax: (+45) 43 52 73 74
info@rosco.dk

1.4 Emergency telephone number
(+45) 43 99 33 77

Section 2: Hazards Identification

2.1 Classification of the substance or mixture
This mixture is a flammable liquid and vapour, causes serious eye damage, is harmful if inhaled, causes skin irritation and may cause respiratory irritation.
Flam. Liq. 3. Acute Tox. 4.
Causes damage to organs through prolonged or repeated exposure.

2.2 Label elements
Classification according to Regulation (EC) No 1272/2008.

<table>
<thead>
<tr>
<th>Pictogram</th>
<th>GHS02: Highly Flammable</th>
<th>GHS07: Harmful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Word</td>
<td>Warning</td>
<td></td>
</tr>
<tr>
<td>Hazard statement(s)</td>
<td>H226 - H315 - H318 - H332 - H335 – EUH066</td>
<td></td>
</tr>
<tr>
<td>Precautionary statement(s)</td>
<td>P210 - P261 - P280 - P305 - P351 - P338</td>
<td></td>
</tr>
</tbody>
</table>

Hazard statement(s)
H226 Flammable liquid and vapour.
H332 Harmful if inhaled.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
EUH066 Repeated exposure may cause skin dryness or cracking.
Precautionary statement(s)
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305 - P351 - P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

The classification is based on data regarding the individual substances, where possible by bridging principles or adjusted minimum classification.

2.3 Other hazards
May cause drowsiness or dizziness.

### Section 3: Composition/Information on Ingredients
Contains: Classification of individual substances.

<table>
<thead>
<tr>
<th>% w/w</th>
<th>Substance Name</th>
<th>CAS-no.</th>
<th>EINECS/ELINCS</th>
<th>Hazard class and category code(s)</th>
<th>Hazard statement(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5,0</td>
<td>p-dimethylaminobenzaldehyde</td>
<td>100-10-7</td>
<td>202-819-0</td>
<td>Acute Tox. 4 Skin Irrit. 2 Eye Irrit. 2</td>
<td>H302 H315 H319</td>
</tr>
<tr>
<td>9,3</td>
<td>Hydrochloric acid %</td>
<td>7647-01-0</td>
<td>231-595-7</td>
<td>Eye Irrit. 2 Skin Irrit. 2; 10 % ≤ C &lt; 25 % STOT SE 3; C ≥ 10 %</td>
<td>H319 H315 H335</td>
</tr>
<tr>
<td>75</td>
<td>Pentanol Isomers (isoamyl alcolhol)</td>
<td>123-51-3</td>
<td>204-633-5</td>
<td>Flam. Liq. 3 Skin Irrit. 2 Eye Dam. 1 Acute Tox. 4 STOT SE 3 (inhalation, resp.)</td>
<td>H226 H315 H318 H332 H335 EUH066</td>
</tr>
</tbody>
</table>

Wording of hazards statements - see section 16.

### Section 4: First-Aid Measures

#### 4.1 Description of first aid measures
- **Inhalation**: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist, seek medical advice.
- **Skin contact**: Remove contaminated clothing. Wash skin with water and mild soap. If irritation persists, seek medical attention.
- **Eye contact**: Flush with water or physiological salt water for at least 15 minutes, holding eye lids open, remember to remove contact lenses, if any. If irritation persists, seek medical advice.
Ingestion
Rinse mouth and drink plenty of water. In case of discomfort, seek medical attention immediately.

Burns
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Immediate rinse skin with water/shower. Do not remove clothing burnt onto skin. Seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed
Irritation of eyes, skin, nose, throat. Headache, dizziness; cough, dyspnea (breathing difficulty), nausea, vomiting, diarrhea. The liquid defats the skin.
Prolonged inhalation of vapours may result in inflammation of the nose and gastrointestinal tract, corrosion of teeth and damage of liver, kidneys, blood and central nervous system.

4.3 Indication of any immediate medical attention and special treatment needed
Show this Safety Data Sheet to a physician or emergency ward.

Section 5: Fire-Fighting Measures

5.1 Extinguishing media
Powder, alcohol-resistant foam, water in large amounts, carbon dioxide or water fog. For fires involving liquids, do not aim the jet straight into the liquid, it can spread the fire.

5.2 Special hazards arising from the substance or mixture.
Do not breathe smoke fumes. In case of fire, the products may form hazardous decomposition such as oxides of carbon.

5.3 Advice for fire-fighters
When entering burning area wear self-contained breathing apparatus. Use water spray to cool fire-exposed containers. Product not miscible with water.

5.4 Other information
No available data.

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment – see section 8. Avoid breathing, vapours, fume, mists. Ventilate area of leak or spillage. In case of fire: Evacuate area. Remove sources of ignition.

6.2 Environmental precautions
Do not empty into drain – see section 12. Inform appropriate authorities in accordance with local regulations.

6.3 Methods and material for containment and cleaning up
Collect leaking and spilled liquid in sealable containers as far as possible. Wash away remainder with plenty of water. Further handling of spillage – see section 13.

6.4 Reference to other sections
See above

Section 7: Handling and Storage

7.1 Precautions for safe handling
Avoid breathing vapours. Provide efficient ventilation. Avoid contact with skin, eyes and clothing. Change contaminated clothes. Wash hands and contaminated area with water and mild soap after use. There shall be access to water and eye wash fountain.
7.2 Conditions for safe storage, including any incompatibilities
Store in a well-closed original container and in a flammable liquid storage area.
Keep dry and cool (2-8°C) and separated from oxidizing agents.
Keep out from the reach of children.

7.3 Specific end use(s)
Use in laboratory. See section 1.

### Section 8: Exposure Controls/Personal Protection

#### 8.1 Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>8-hour TWA</th>
<th>15-min STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-methylbutan-1-ol (isomyl alcohol)</td>
<td>100 ppm=366 mg/m³</td>
<td>125 ppm=458 mg/m³</td>
</tr>
<tr>
<td>Hydrogen chloride (gas and aerosol mists)</td>
<td>1 ppm= 2 mg/m³</td>
<td>5 ppm = 8 mg/m³</td>
</tr>
</tbody>
</table>

#### 8.2 Exposure controls

**Appropriate measures:**

Appropriate engineering controls: Provide efficient ventilation e.g. by working in a fume cupboard. General practice of industrial hygiene.

**Personal Protective Equipment**

**Respiratory protection:**

Normally not necessary if working in fume cupboard. In case of working in not adequate ventilated areas, use an approved mask with a gas filter: A. The filter has a limited lifetime and must be changed. Read the instructions.

**Skin protection:**

Wear protective gloves of e.g. butyl rubber or nitrile rubber. Breakthrough time: 3 hours.

**Eye protection:**

Wear tight fitting safety goggles when risk of eye contact.

**Environmental exposure controls:**

None particular.

### 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>Clear, yellow liquid</td>
</tr>
<tr>
<td>Odour</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No available data</td>
</tr>
<tr>
<td>pH</td>
<td>No available data</td>
</tr>
<tr>
<td>Melting point/freezing point (°C)</td>
<td>No available data</td>
</tr>
<tr>
<td>Initial boiling point and boiling range (°C)</td>
<td>No available data</td>
</tr>
<tr>
<td>Flash point</td>
<td>42.7</td>
</tr>
<tr>
<td>Evaporation rate (water = 1)</td>
<td>No available data</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No available data</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limit (vol-%)</td>
<td>No available data</td>
</tr>
<tr>
<td>Vapour pressure (mmHg, 20°C)</td>
<td>No available data</td>
</tr>
<tr>
<td>Vapour density (Water=1)</td>
<td>No available data</td>
</tr>
<tr>
<td>Relative density (Water=1)</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Water solubility:</td>
<td>Miscible w/ water</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No available data</td>
</tr>
<tr>
<td>Auto-ignition temperature (°C)</td>
<td>No available data</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No available data</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not relevant</td>
</tr>
</tbody>
</table>
9.2 Other information
None relevant

10: Stability and Reactivity

10.1 Reactivity
No specific test data related to reactivity available for this product.

10.2 Chemical Stability
Stable under the recommended storage conditions (see section 7).

10.3 Possibility of hazardous reactions
Vapours can be ignited by a spark, a hot surface or a glow. Vapours are heavier than air.

10.4 Conditions to avoid
Formation of sparks and glows. Excessive heating and sources of ignition.

10.5 Incompatible materials
May react strongly with oxidizing agents, acids and alkaline substances.

10.6 Hazardous decomposition products
When heated to high temperatures (decomposition) it emits toxic fumes such as oxides of carbon.

11: Toxicological Information

11.1 Information on toxicological effects acute toxicity

<table>
<thead>
<tr>
<th>Hazard class</th>
<th>Data: Isoamyl alcohol</th>
<th>Test</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td>Inhalation/Human; lowest published toxic concentration: 150 ppm.</td>
<td>No info</td>
<td>(RTECS) JIHTAB 25,282,1943</td>
</tr>
<tr>
<td>Dermal</td>
<td>Subcutaneous/mouse; lowest published lethal dose: 7480 mg/kg</td>
<td>No info</td>
<td>FCTXAV 16,785,1978</td>
</tr>
<tr>
<td>Oral</td>
<td>Oral/rat; lethal dose (50 percent kill): 1300 mg/kg</td>
<td>No info</td>
<td>SAMJAF 43,795,1969</td>
</tr>
<tr>
<td>Corrosion/</td>
<td>Skin /rabbit; dose: 20 mg/24H; Effect: moderate.</td>
<td>No info</td>
<td>85JCAE - ,196,1986</td>
</tr>
<tr>
<td>Irritation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information on likely routes of exposure: lungs, skin and gastrointestinal tract.

Symptoms:
Inhalation: Vapours may cause irritation to the airways. May induce discomfort, nausea, dizziness, headache, narcosis and unconsciousness.

Skin: May cause irritation with redness. Degreases skin.

Eyes: May cause irritation with redness, pain and blurred vision.


Chronic effect: Prolonged or frequent exposure to vapours of volatile compounds may result in damage of liver, kidneys, blood and central nervous system.

Respiratory or skin sensitisation
No available data
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Germ cell mutagenicity
No available data

Carcinogenicity
No proven carcinogenic effect in humans.

Reproductive toxicity
No available data

STOT-single exposure
No available data

STOT-repeated exposure
No available data

Aspiration hazard
Possible aspiration hazard if swallowed (can enter lungs and cause damage).

Additional information
Prolonged or frequent contact or inhalation can cause eczema and inflammation of the skin and airways.

12: Ecological Information

12.1 Toxicity
Isoamylalcohol is slightly toxic in the aquatic environment.
Toxicity to fathead minnow (LC50 in mg/l) as predicted by Topkat v6.1 (OECD): 570.3.

12.2 Persistence and degradability
Isoamylalcohol is readily biodegradable.

12.3 Bioaccumulative potential
Isoamylalcohol is not expected to bioaccumulate.

12.4 Mobility in soil
Practically insoluble in water and mobility in the aquatic systems is expected to be limited.

12.5 Results of PBT and vPvB assessment
Ingredients are not considered PBT/vPvB according to criteria in Annex XIII.

12.6 Other adverse effects
None known

13: Disposal Considerations

13.1 Waste treatment measures
Disposal should be according to local, state or national legislation. Dispose though authority facilities or pass to chemical disposal company.
EWC Code: 160508

14: Transport Information

Not dangerous goods (ADR/RID).

14.1 UN number
1105

14.2 UN proper shipping name
14.3 Transport hazard class(es)  
3

14.4 Packing group  
III

14.5 Environmental hazards  
None

14.6 Special precautions for user  
No special precautions required.

14.7 Transport for bulk according to Annex II of MARPOL and the IBC Code  
Not relevant.

15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture  
This safety data sheet complies with the requirements of Regulation (EU) 1907/2006, amended by 2015/830/EU.

Must not be used by persons under 18 years of age.
The employer shall assess the working conditions and, if there is any risk to the safety or health and any effects on the pregnancy or breastfeeding of workers, take the necessary measures to adjust the working conditions (Directive 92/85/EEC).

15.2 Chemical Safety Assessment  
A Chemical Safety Assessment (CSA) is not required.

16: Other Information

CLP Label elements (1272/2008):
Content: Isoamyl alcohol, Pentanol Isomers

GHS02: Highly Flammable; GHS07: Harmful

Hazard statements mentioned in section 2 & 3:  
H226: Flammable liquid and vapour.  
H302: Harmful if swallowed.  
H315: Causes skin irritation.  
H318: Causes serious eye damage.  
H332: Harmful if inhaled.  
H335: May cause respiratory irritation.  
EUH066: Repeated exposure may cause skin dryness or cracking.

Precautionary statement(s)  
P233: Keep container tightly closed.
SAFETY DATA SHEET

P210: Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P261: Avoid breathing fume/gas/mist/vapours/spray.
P270: Do not eat, drink or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403 + P235: Store in a well-ventilated place. Keep cool.

Abbreviations:
CMR = Carcinogenicitet, mutagenicitet og reproduktionstoksicitet
CSR = Chemical Safety Report
EC50 = Effect Concentration 50 %
DNEL = Derived No-Effect Level
FW = Fresh Water
LC50 = Lethal Concentration 50 %
LD50 = Lethal Dose 50 %
PBT = Persistent, Bioaccumulative, Toxic
PNEC = Predicted No-Effect Concentration
TDLo = Toxic Dose Low
vPvB = very Persistent, very Bioaccumulative

Training Advice
No special training required. However, the user should be well instructed in the execution of the task, be familiar with this Safety Data Sheet and have normal training in the use of personal protective equipment.

Additional information
The information provided on this Safety Data Sheet is correct to the best of our knowledge. The information given is intended only as a guide for safe handling, storage, processing, transport and disposal and is not to be considered as a warranty or quality specification. The information relates only to the specific product and cannot be used in combination with other products unless specified.