MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MSDS Name: 1-Methyl-4-nitro-1H-imidazole-2-carboxylic acid
CAS Number: 109012-24-0
Catalog Numbers: AK128576
For R&D use only.
Company Identification:
Ark Pharm, Inc.
1840 Industrial Drive, Suite 280
Libertyville, IL 60048 USA
Tel: 847-367-3680
Fax 847-367-3681

2. COMPOSITION, INFORMATION ON INGREDIENTS

Molecular Formula: C5H5N3O4
Molecular Weight: 171.111g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Methyl-4-nitro-1H-imidazole-2-carboxylic acid</td>
<td>109012-24-0</td>
</tr>
</tbody>
</table>

3. HAZARDS IDENTIFICATION EMERGENCY OVERVIEW

3.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]
Acute toxicity, Oral (Category 4)
Skin irritation (Category 2)
Eye irritation (Category 2)
Specific target organ toxicity - single exposure (Category 3)

Classification according to EU Directives 67/548/EEC or 1999/45/EC
Harmful if swallowed. Irritating to eyes, respiratory system and skin.

3.2 Label elements

Labelling according Regulation (EC) No 1272/2008 [CLP]

Pictogram
Signal word Warning
Hazard statement(s)
H302 Hazarm if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
Precautionary statement(s)
P261 Avoid breathing dust.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several
minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements

According to European Directive 67/548/EEC as amended

Hazard symbol(s)

R-phrase(s)
R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.

S-phrase(s)
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S36/37 Wear suitable protective clothing and gloves.

3.3 Other hazards

4. FIRST AID MEASURES

Eyes: Flush eyes with plenty of water occasionally lifting the upper and lower lids. Get medical aid.
Skin: Get medical aid. Flush skin with plenty of water while removing contaminated clothing and shoes.
Ingestion: Get medical aid. Wash mouth out with water.
Inhalation: Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

5. FIRE FIGHTING MEASURES

General Information: As in any fire, wear a self-contained breathing apparatus and full protective gear.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide or chemical foam.

6. ACCIDENTAL RELEASE MEASURES

General Information: Use proper personal protective equipment.
Spills/Leaks: Vacuum or sweep up material and place into suitable disposal container. Avoid generating dusty conditions.

7. HANDLING AND STORAGE

Handling: Avoid breathing dust, vapor, mist or gas. Avoid contact with eyes, skin.
Storage: Storage temperature: 2 - 4 °C and Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower. Use adequate ventilation to keep airborne concentrations low.
Personal Protective Equipment
Eyes: Wear chemical safety goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Wear appropriate respirators where necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES
10.  STABILITY AND REACTIVITY

Chemical Stability: This product is relatively unstable under normal temperature.
Incompatibilities with Other Materials: Strong oxidizing agents.
Hazardous combustion or Decomposition products: Carbon monoxide, carbon dioxide, and nitrogen oxides.

11.  TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available.

Skin corrosion/irritation
No data available.

Serious eye damage/eye irritation
No data available.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity
No data available.

Specific target organ toxicity - single exposure
No data available.

Specific target organ toxicity - repeated exposure
No data available.

Aspiration hazard
No data available.

Additional Information
RTECS: No data available.
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12.  ECOLOGICAL INFORMATION

12.1 Toxicity
No data available.

12.2 Persistence and degradability
No data available.

12.3 Bioaccumulative potential
No data available.

12.4 Mobility in soil
12.5 Results of PBT and vPvB assessment
No data available.

12.6 Other adverse effects
No data available.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

14.1 UN number
ADR/RID: _  IMDG: _  IATA: _

14.2 UN proper shipping name
ADR/RID:  Not dangerous goods
IMDG:  Not dangerous goods
IATA:  Not dangerous goods

14.3 Transport hazard class(es)
ADR/RID: _  IMDG: _  IATA: _

14.4 Packaging group
ADR/RID: _  IMDG: _  IATA: _

14.5 Environmental hazards
ADR/RID:  No  IMDG Marine pollutant:  No  IATA:  No

14.6 Special precautions for user
No data available.

15. REGULATORY INFORMATION
This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.
Safety, health and environmental regulations/legislation specific for the substance or mixture:
No data available.
Chemical Safety Assessment: No data available.

16. ADDITIONAL INFORMATION
The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

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