SAFETY DATA SHEET

Creation Date 29-Jun-2010 **Revision Date** 09-May-2011 **Revision Number** 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Description: **Piperidine**
Cat No. **147180000; 147180010; 147180025; 147180050; 147180100; 147181000; 147185000**
Synonyms Azacyclohexane; Cyclopentimine; Hexahydropyridine

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

Recommended Use Laboratory chemicals
Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Acros Organics BVBA
Janssen Pharmaceuticalaan 3a
2440 Geel, Belgium
E-mail address begel.sdsdesk@thermofisher.com

Emergency Telephone Number
For information in the US, call: 001-800-ACROS-01
For information in Europe, call: +32 14 57 52 11

Emergency Number, Europe: +32 14 57 52 99
Emergency Number, US: 001-201-796-7100

CHEMTREC Phone Number, US: 001-800-424-9300
CHEMTREC Phone Number, Europe: 001-703-527-3887

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture
REGULATION (EC) No 1272/2008

Acute dermal toxicity	Category 3
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion / irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Flammable liquids.	Category 2

Classification according to EU Directives 67/548/EEC or 1999/45/EC

For the full text of the R phrases mentioned in this Section, see Section 16

Symbol(s) T - Toxic
F - Highly flammable
R -phrase(s) R11 - Highly flammable
R34 - Causes burns
Risk Combination Phrases R23/24 - Toxic by inhalation and in contact with skin

2. HAZARDS IDENTIFICATION

Label Elements

Signal Word **Danger**

Hazard Statements
H311 - Toxic in contact with skin
H331 - Toxic if inhaled
H314 - Causes severe skin burns and eye damage
H225 - Highly flammable liquid and vapor

Precautionary Statements - EU (§28, 1272/2008)
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P302 + P350 - IF ON SKIN: Gently wash with plenty of soap and water
P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/ physician
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking
P240 - Ground/Bond container and receiving equipment

Other Hazards
No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	EC No.	Weight %	CAS-No	Classification	GHSCLAS	REACH Reg. No.
Piperidine 110-89-4	EEC No. 203-813-0	>95	110-89-4	F;R11 T;R23/24 C;R34	Acute Tox. 3 (H311) Skin Corr. 1B (H314) Flam. Liq. 2 (H225)	-

For the full text of the R phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

Description of first aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes Immediate medical attention is required
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes Immediate medical attention is required
Ingestion	Do not induce vomiting Call a physician or Poison Control Center immediately
Inhalation	Move to fresh air If breathing is difficult, give oxygen Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device Immediate medical attention is required
Notes to Physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide Cool closed containers exposed to fire with water spray

Extinguishing media which must not be used for safety reasons

No information available.

Special hazards arising from the substance or mixture

Flammable Containers may explode when heated Vapors may form explosive mixtures with air Vapors may travel to source of ignition and flash back

Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear Thermal decomposition can lead to release of irritating gases and vapors

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

Environmental precautions

Should not be released into the environment.

Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Use only under a chemical fume hood Wear personal protective equipment Do not get in eyes, on skin, or on clothing Keep away from open flames, hot surfaces and sources of ignition Use only non-sparking tools Use explosion-proof equipment Do not breathe vapors/dust Do not ingest Take precautionary measures against static discharges

Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place Flammables area Keep away from heat and sources of ignition Store under an inert atmosphere

Specific End Uses

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure limits

Component	Austria	Switzerland	Poland	Norway	Ireland
Piperidine					TWA: 3.5 mg/m³ TWA: 1 ppm Skin

Derived No Effect Level (DNEL) No information available.

Predicted No Effect Concentration (PNEC) No information available.

Exposure controls

Engineering Measures Use only under a chemical fume hood Ensure that eyewash stations and safety showers are close to the workstation location Use explosion-proof electrical/ventilating/lighting/equipment

Personal protective equipment

Eye Protection Goggles

Hand Protection Protective gloves

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice

Environmental exposure controls No information available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid

Appearance Colorless

9. PHYSICAL AND CHEMICAL PROPERTIES

odor	amine-like
pH	12.6 100 g/L aq.sol.
Vapor Pressure	24.75 mmHg @ 20 °C
Vapor Density	3.0 (Air = 1.0)
Viscosity	1.46 mPa s at 20 °C
Boiling Point/Range	106°C / 222.8°F
Melting Point/Range	-11°C / 12.2°F
Decomposition temperature	> 500°C
Flash Point	16°C / 60.8°F
Autoignition Temperature	320°C / 608°F
Explosion Limits	
Lower	1.5 Vol%
Upper	10.3 Vol%
Water Solubility	miscible
Specific Gravity	0.862
Molecular Formula	C5 H11 N
Molecular Weight	85.15

10. STABILITY AND REACTIVITY

Reactivity

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions .	None under normal processing..

Conditions to Avoid

Incompatible products, Excess heat, Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials

Strong oxidizing agents, Acids.

Hazardous Decomposition Products

Carbon monoxide (CO). Carbon dioxide (CO_2). Nitrogen oxides (NOx).

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Acute Toxicity

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Piperidine	30 mg/kg (Rat)	276 mg/kg (Rabbit)	

Chronic Toxicity

Carcinogenicity There are no known carcinogenic chemicals in this product

Sensitization No information available.
Mutagenic Effects No information available
Reproductive Effects Experiments have shown reproductive toxicity effects on laboratory animals
Developmental Effects No information available.
Teratogenicity Teratogenic effects have occurred in experimental animals.
Target Organs Respiratory system Eyes Skin Gastrointestinal tract (GI) Liver Kidney
Other Adverse Effects See actual entry in RTECS for complete information
Endocrine Disruptor Information None known

12. ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity effects Do not empty into drains

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Piperidine		LC50: >46-<100 mg/L/96h (Leuciscus idus)		

Persistence and degradability
Readily biodegradable

Bioaccumulative potential
No information available.

Component	log Pow
Piperidine	0.67

Mobility in soil
No information available.

Results of PBT and vPvB assessment
Other adverse effects
No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

13. DISPOSAL CONSIDERATIONS

Waste from Residues / Unused Products Dispose of in accordance with local regulations

Contaminated Packaging Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

IMDG/IMO

UN-No	UN2401
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	I
Proper Shipping Name	PIPERIDINE

ADR

UN-No	UN2401
Hazard Class	8
Subsidiary Class	3
Packing Group	I
Proper Shipping Name	PIPERIDINE

IATA

UN-No	UN2401
Hazard Class	8
Subsidiary Hazard Class	3
Packing Group	I
Proper Shipping Name	PIPERIDINE

15. REGULATORY INFORMATION

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

International Inventories

Component	EINECS	ELINCS	NLP	TSCA	DSL	NDSL	PICCS	ENCS	CHINA	AICS	KECL
Piperidine	203-813-0	-		X	X	-	X	X	X	X	KE-28769 X

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory Lists
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
PICCS - Philippines Inventory of Chemicals and Chemical Substances
ENCS - Japan Existing and New Chemical Substances

CHINA - China Inventory of Existing Chemical Substances
AICS - Inventory of Chemical Substances
KECL - Existing and Evaluated Chemical Substances

Chemical Safety Assessment

16. OTHER INFORMATION

Text of R phrases mentioned in Section 2-3
R11 - Highly flammable
R34 - Causes burns
R23/24 - Toxic by inhalation and in contact with skin

Revision Date 09-May-2011
Revision Summary Not applicable
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006
Disclaimer
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End of Safety Data Sheet