MATERIAL SAFETY DATA SHEET

according to the Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 12/20/2012 Version 1.1

SECTION 1. Identification

Product identifier

Product number	807476
Product name	Isopropylamine for synthesis

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

Identified uses	Chemical for synthesis

Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821, United States of America | SDS Phone Support: +1-978-715-1335 | General Inquiries: +1-978-751-4321 | Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) e-mail: mm_sds@merckgroup.com
Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 1, H224
Eye irritation, Category 2, H319
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335
Skin irritation, Category 2, H315

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms

Signal Word
Danger

Hazard Statements
H224 Extremely flammable liquid and vapor.
H315 Causes skin irritation.

H319 Causes serious eye irritation.
H335 May cause respiratory irritation.

Precautionary Statements
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
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.

OSHA Hazards
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	$(CH_3)_2CHNH_2$	C_3H_9N (Hill)
CAS-No.	75-31-0	
Molar mass	59.11 g/mol	

Hazardous ingredients
Chemical Name (Concentration)
CAS-No.

2-aminopropane; isopropylamine (>= 90 % - <= 100 %)
75-31-0

SECTION 4. First aid measures

Description of first-aid measures
Inhalation
After inhalation: fresh air.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
irritant effects, Cough, Shortness of breath, narcosis
Risk of corneal clouding.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at ambient temperatures.
Pay attention to flashback.
Development of hazardous combustion gases or vapors possible in the event of fire.
Fire may cause evolution of:
nitrogen oxides

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Keep away from open flames, hot surfaces and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.
Observe possible material restrictions (see sections 7 and 10).
Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® OH^-, Merck Art. No. 101596). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities
Keep away from heat and sources of ignition. Keep container tightly closed in a dry and well-ventilated place.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
2-aminopropane; isopropylamine 75-31-0			
ACGIH	Time Weighted Average (TWA):	5 ppm	
	Short Term Exposure Limit (STEL):	10 ppm	
OSHA_TRANS	PEL:	5 ppm 12 mg/m³	
Z1A	Short Term Exposure Limit (STEL):	10 ppm 24 mg/m³	
	Time Weighted Average (TWA):	5 ppm 12 mg/m³	

Engineering measures
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures
Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection
Safety glasses

Hand protection
Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:
Flame retardant antistatic protective clothing

Respiratory protection
required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	amine-like
Odor Threshold	No information available.
pH	13 at 700 g/l 68 °F (20 °C)
Melting point	-150 °F (-101 °C)
Boiling point/boiling range	88 - 91 °F (31 - 33 °C) at 1,013 hPa
Flash point	-35 °F (-37 °C) Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	2 %(V)
Upper explosion limit	10.4 %(V)
Vapor pressure	632 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Relative density	0.69 g/cm³ at 68 °F (20 °C)
Water solubility	1,000 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 0.26 OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.

Decomposition temperature	No information available.
Viscosity, dynamic	0.36 mPa.s at 68 °F (20 °C)
Explosive properties	No information available.
Ignition temperature	626 °F (330 °C) Method: DIN 51794
Minimum ignition energy	2.0 mJ

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

Sensitive to air.

Possibility of hazardous reactions

Violent reactions possible with:

Strong acids, Oxidizing agents, Halogenated hydrocarbon, anhydrides, Ketones, Nitriles, Alcohols, Aldehydes, Esters, phenols, Mercury

Risk of explosion with:

perchloryl fluoride

Caution! In contact with nitrites, nitrates, nitrous acid possible liberation of nitosamines!

Conditions to avoid

Warming.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Incompatible materials

Aluminum, Lead, Copper, Zinc, Tin

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure
Inhalation, Eye contact, Skin contact, Ingestion

Target Organs
Eyes
Skin
Respiratory system

Acute oral toxicity
LD50 rat: 550 mg/kg (IUCLID)
Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity
LC50 rat: 9.8 mg/l; 4 h (IUCLID)
Symptoms: Cough, Shortness of breath, mucosal irritations, Inhalation may lead to the formation of oedemas in the respiratory tract., Possible damages:, Irritation symptoms in the respiratory tract.

Irritating to respiratory system.

Acute dermal toxicity
LD50 rabbit: > 400 mg/kg
OECD Test Guideline 402

absorption

Skin irritation
rabbit
Result: Causes burns.
(IUCLID)

Causes skin irritation.

Eye irritation
rabbit
Result: Severe irritations
(RTECS)

Risk of corneal clouding.
Causes serious eye irritation.

Sensitization
Sensitization test: guinea pig
Result: negative
Method: OECD Test Guideline 406

Genotoxicity in vitro
Ames test
Salmonella typhimurium
Result: negative
(National Toxicology Program)

Specific target organ systemic toxicity - single exposure
May cause respiratory irritation.

Specific target organ systemic toxicity - repeated exposure
The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard
Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed

	human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:
After absorption of large quantities:
narcosis
Damage to:
Kidney
Other information
Under given conditions, contact with nitrites or nitric acid can lead to the formation of nitrosamines, which have shown themselves to be carcinogenic in animal experiments.
Further data:
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 S.gairdnerii: 40 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates
EC50 Daphnia magna (Water flea): 47.4 mg/l; 48 h (IUCLID)

Toxicity to algae
IC50 Desmodesmus subspicatus (green algae): 4.13 mg/l; 72 h (IUCLID)

Toxicity to bacteria
EC50 Pseudomonas putida: 99 mg/l; 17 h (IUCLID)

Persistence and degradability

Biodegradability
70 - 80 %
OECD Test Guideline 301F
Readily biodegradable.

Bioaccumulative potential

Partition coefficient: n-octanol/water
log Pow: 0.26
OECD Test Guideline 107
Bioaccumulation is not expected (log Pow <1).

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1221
Proper shipping name	ISOPROPYLAMINE
Class	3 (8)
Packing group	I
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1221
Proper shipping name	ISOPROPYLAMINE
Class	3 (8)
Packing group	I
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1221
Proper shipping name	ISOPROPYLAMINE
Class	3 (8)
Packing group	I
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-C

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Flammable Liquid
Harmful if swallowed.
Toxic by skin absorption
Skin irritant
Eye irritant
Respiratory irritant

Target organ effects

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

US State Regulations

Massachusetts Right To Know

Ingredients
2-aminopropane; isopropylamine

Pennsylvania Right To Know

Ingredients
2-aminopropane; isopropylamine

New Jersey Right To Know

Ingredients
2-aminopropane; isopropylamine

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

Notification status

TSCA:	On TSCA Inventory
DSL:	All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H224	Extremely flammable liquid and vapor.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Key or legend to abbreviations and acronyms used in the safety data sheet
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

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