GPS Safety Summary

Substance Name:

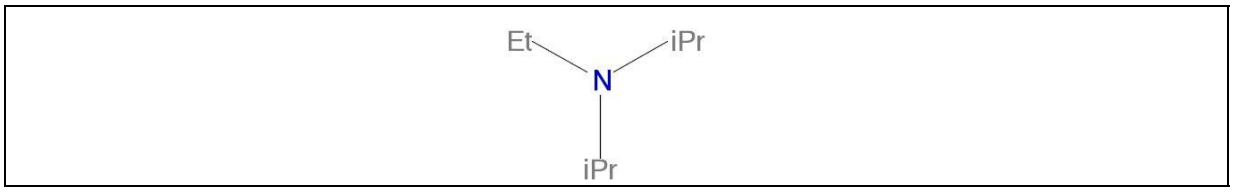
Ethyldiisopropylamine

1. General Statement

Ethyldiisopropylamine is a colourless/light yellow liquid miscible in water. It is an amine commonly called EDIPA. It is a highly flammable liquid and a corrosive product.

2. Chemical Identity

Name:	Ethyldiisopropylamine
Brand name:	EDIPA
Chemical name (IUPAC):	N-ethyl-N-isopropylpropan-2-amine
CAS number(s):	7087-68-5
EC number:	230-392-0
Molecular formula:	$C_8H_{19}N$
Structure:	



3. Use and applications

Ethyldiisopropylamine is a tertiary amine which is mainly used as an auxiliary reagent in organic synthesis (especially synthesis of pharmaceutical ingredients) for its proton acceptor/scavenger properties, low nucleophilicity and low water solubility. It is also known under the name of "Hunig base".

4. Physical / Chemical properties

Ethyldiisopropylamine is a highly flammable liquid organic substance having the following characteristics and physico–chemical properties:

Property	Value
Physical state	liquid at 20°C and 1013 hPa
Colour	colourless, light yellow
Odour	strong, amines
Molecular weight	129.24 g/mol
Density	0.75 at 20°C
Vapour pressure	14.25 hPa at 20°C
Freezing / boiling points	-45°C / 128.33°C at 1013 hPa

Flammability	Highly flammable liquid and vapour
Flash point	12°C (closed cup)
Self-ignition temperature	260°C at 1013 hPa
Explosive / oxidizing properties	Not relevant based on its structure
Water solubility	7.4 g/L at 20°C
Dissociation constant (pK_a)	10.95 at 20°C
Octanol-water partition coefficient (Log K_{ow})	- 1.80 at < 20°C

5. Health Effects

Effect Assessment	Result
Acute Toxicity Oral / inhalation / dermal	Harmful by oral route. Toxic by inhalation. Of low toxicity by skin contact
Irritation / corrosion Skin / eye/ respiratory tract	Slightly irritation to the skin. Severely irritating to the eyes. Irritating to the respiratory tract
Sensitisation	Not a skin sensitizer
Toxicity after repeated exposure Oral / inhalation / dermal	Inhalation studies on analogue substances did not suggest a specific systemic toxicity following repeated exposure. Irritation of the respiratory tract was observed
Genotoxicity / Mutagenicity	No evidence of genetic toxicity
Carcinogenicity	Not anticipated to cause cancer under conditions of normal use
Reproductive / Developmental Toxicology	Studies on analogue substances did not suggest toxic effects on the fertility and the development

6. Environmental Effects

The potential of ethyldiisopropylamine for bioaccumulation is low. This product may however persist in the environment. It is harmful to aquatic organisms as regard acute effects, no known long term effects. Do not release in the environment.

Effect Assessment	Result
Aquatic Toxicity	Harmful to aquatic organisms, acute effects, no known long term effects.

Fate and behaviour	Result
Biodegradation	Not readily biodegradable
Bioaccumulation potential	Not expected to bioaccumulate
PBT / vPvB conclusion	Not considered as PBT* or vPvB**

*: Persistent, Bioaccumulative and Toxic (PBT)
**: very Persistent and very Bioaccumulative (vPvB)

7. Exposure

7.1 Human health

Ethyldiisopropylamine is manufactured, used and formulated within industrial settings.

The primary routes of industrial exposure of ethyldiisopropylamine (EDIPA) are skin contact and inhalation, ingestion is not an anticipated route of exposure. Workers may be exposed during cleaning, maintenance, transfer, sampling and analysis.

Based on the risk assessment, the exposure can be kept at a safe level (strictly below occupational exposure limits, when applied) when activities are carried out under conditions recommended in the Extended Safety Data Sheet (see Chap. 8 and Exposure Scenarios).

Procedures, controls, suitable collective and personal risk management measures, good industrial hygiene practices and risk communication through appropriate training of workers should be implemented.

In case of exposure to the undiluted substance, workers should follow the first aid measures recommended in the Safety Data Sheet.

7.2 Environment

The assessment of the environmental exposure was made for all the uses and resulted life cycle stages of the substance from the manufacture to the waste stage.

EDIPA is manufactured and used in continuous or batch processes within industrial settings.

Based on the risk assessment, environmental exposure can be kept at a safe level when activities are carried out under conditions recommended in the extended Safety Data Sheet (see Chap. 6, and Exposure Scenarios).

All industrial aqueous releases that may contain the substance must be treated to avoid any exposure to the environment.

Disposal, treatment or recycling of industrial waste must comply with chap. 13 of the Safety Data Sheet and applicable regulations to preserve the environment.

Procedures, controls and risk management measures should be implemented on industrial manufacturing and application sites; effluents that may contain the substance must be treated to avoid any exposure to the environment.

8. Risk Management recommendations

Human health measures		
Organizational	Collect the latest available Safety Data Sheet. Implement good basic standards of occupational health. Ensure operatives are well informed of the hazards and trained to minimise exposures. Handle and store according to the indications of the Safety Data Sheet.	
Engineering controls	Provide appropriate local exhaust ventilation at points of emission. Ensure that eye- and handwash stations and safety showers are close to workstation locations.	
Protection	**Eye/Face protection:**	Safety glasses with side-shields
	Skin and body protection:	At the workplace : Protective clothing (cotton) Intervention at incident: Waterproof suit
	Hand protection:	Gloves (PVC, neoprene) According to permeation index EN 374: 1 (time elapsed > 10 mins)

Protection	**Respiratory protection:**	Low concentrations or short activity: Mask with specific cartridge (Recommended Filter type: A2B2E2K2P3) High concentrations or prolonged activity: Self contained Breathing Apparatus

Environment protective measures
Do not release into the environment. Do not let product enter drains. Use waste water treatment systems. Do not spread sludge to soil. Elimination: destroy the product by incineration (in accordance with local and national regulations) (see chap. 13 of the Safety Data Sheet).

9. Regulatory Information / Classification and Labelling

9.1 Regulatory Information

This substance has been registered under:

— EU Regulation EC 1907/2006 (REACH)

9.2 Classification and labelling

Under GHS substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the eSDS. GHS attempts to standardize hazard communication so that the intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use. Substances registered for REACH are classified according to CLP (EC) 1272/2008, implementation of the GHS in the European Union.

Classification and labelling according to Regulation (EC) n° 1272/2008

Classification
— Flammable liquids: Category 2 — Acute toxicity – Oral: Category 4 — Acute toxicity – Inhalation: Category 3 — Serious eye damage: Category 1 — Specific target organ toxicity - single exposure (inhalation): Category 3
Labelling
Hazard pictogram(s)

Signal word
— Danger
Hazard statement(s)
— H225: Highly flammable liquid and vapour. — H302: Harmful if swallowed. — H331: Toxic if inhaled. — H318 : Causes serious eye damage. — H335: May cause respiratory irritation.

Classification and labelling according to GHS

Classification
– Flammable liquids: Category 2 – Acute toxicity – Oral: Category 4 – Acute toxicity – Inhalation: Category 3 – Skin irritation: Category 3 – Serious eye damage: Category 1 – Specific target organ toxicity - single exposure (inhalation): Category 3 – Acute aquatic toxicity: Category 3
Labelling
Hazard pictogram(s)

Signal word
– Danger
Hazard statement(s)
– H225: Highly flammable liquid and vapour. – H302: Harmful if swallowed. – H331: Toxic if inhaled. – H316: Causes mild skin irritation. – H318 : Causes serious eye damage. – H335: May cause respiratory irritation. – H402: Harmful to aquatic life.

10. Contact Information within Company

For further information on this substance or product safety summary in general, please contact:

– arkema-thiochem-reach-uses@arkema.com

– **ICCA portal where the GPS Safety Summary is posted**:
http://www.icca-chem.org/en/Home/ICCA-initiatives/global-product-strategy/

11. Date of Issues / Revision

– Date of issue: 2014/11/15

– Date of revision:

12. Disclaimer

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