SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-T-29178
Product Name	2-Imidazolidinethione
CAS No.	96-45-7
Category	Pesticide Standards
Synonyms	1,3-Ethylenethiourea; 2-Imidazoline-2-thiol; 2-Mercapto-2-imidazoline; 2-Mercapto-4,5-dihydroimidazole
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email **sales@clearsynth.com** for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

Serious eye damage/eye irritation (Category 2)
Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning

Hazard Statement(s)

Code	Statement
H302	Harmful if swallowed.
H312	Harmful in contact with skin.

H351	Not available
H360	Not available
H372	Not available
H412	Not available
H317	May cause an allergic skin reaction.
H402	Not available
H319	Causes serious eye irritation.
H373	Not available
H320	Not available

Precautionary Statement(s)

Code	Statement
P203	Not available
P264	Wash hands thoroughly after handling.
P270	Not available
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P317	Not available
P318	Not available
P330	Not available
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulatio
P260	Not available
P273	Not available
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P317	Not available
P319	Get medical help if you feel unwell.
P321	Specific treatment (see … on this label).
P362+P364	Take off contaminated clothing and wash it before reuse.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P272	Not available

P333+P317	Not available
P264+P265	Not available
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if presen
P337+P317	If eye irritation persists: Get medical help.

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : 2-Imidazolidinethione
CAS Number : 96-45-7
Molecular Formula : C3H6N2S
Molecular Weight : 102.16
Parent Chemical : -
Synonyms : 1,3-Ethylenethiourea; 2-Imidazoline-2-thiol; 2-Mercapto-2-imidazoline; 2-Mercapto-4,5-dihydroimidazole
Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures
General advice: Remove contaminated clothing and shoes. Seek medical attention if symptoms persist or are severe.
Inhalation: Move person to fresh air. If breathing is difficult, seek medical attention.
Skin contact: Wash with plenty of soap and water. Get medical attention if irritation develops or persists.
Eye contact: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. Seek medical attention if irritation persists.
Ingestion: Rinse mouth. Do NOT induce vomiting unless directed by medical personnel. Seek medical attention.

4.2 Most important symptoms/effects, acute and delayed
Not available.

4.3 Indication of immediate medical attention and special treatment needed
Treat symptomatically. No data available.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media
Suitable extinguishing media: Use extinguishing measures appropriate to local circumstances and the surrounding environment (e.g., water spray, dry chemical, foam, carbon dioxide).
Unsuitable extinguishing media: Not available.

5.2 Special hazards arising from the substance or mixture
Hazardous combustion products: Not available.

5.3 Advice for firefighters
Wear self-contained breathing apparatus (SCBA) and full protective gear. Avoid inhalation of combustion products. Use water spray to cool unopened containers exposed to heat.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Avoid dust formation. Avoid breathing dust. Use appropriate personal protective equipment.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Avoid release to the environment. No data available on specific environmental precautions.

6.3 Methods and material for containment and cleaning up
Contain spill. Collect spilled material using methods that minimize dust generation (e.g., damp wipe or HEPA-filtered vacuum). Place in suitable, closed container for disposal. Clean contaminated area.

6.4 Reference to other sections
See Section 8 for personal protective equipment and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin and eyes. Avoid breathing dust. Provide adequate ventilation. Wash hands thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities
Store in a tightly closed container in a cool, dry, well-ventilated place. Protect from moisture. Incompatible materials: Not available.

7.3 Specific end use(s)
Pesticide standard. For laboratory/research use. No further information available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
Occupational exposure limits: Not available.
Biological limit values: Not available.

8.2 Exposure controls
Engineering controls: Use local exhaust ventilation or general ventilation to minimize airborne dust.
Personal protective equipment (PPE):
- Eye/face protection: Safety glasses with side shields or chemical splash goggles.
- Skin protection: Protective gloves. Protective clothing as appropriate.
- Respiratory protection: If ventilation is inadequate or dust is generated, use a suitable particulate respirator.
- Hygiene measures: Wash hands after handling. Remove contaminated clothing and wash before reuse.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available.

10.2 Chemical stability
Stable under recommended storage conditions. No data available.

10.3 Possibility of hazardous reactions
No data available.

10.4 Conditions to avoid
Avoid dust generation. Avoid incompatible conditions. No data available.

10.5 Incompatible materials
Not available.

10.6 Hazardous decomposition products
Not available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
- Acute toxicity: Evaluation: There is inadequate evidence in humans for the carcinogenicity of ethylenethiourea. There is sufficient evidence in experimental animals for the carcinogenicity of ethylenethiourea. Overall evaluation: Ethylenethiourea is not classifiable as to its carcinogenicity to humans (Group 3). In making its evaluation, the Working Group concluded that ethylenethiourea produces thyroid tumors in mice and rats by a non-genotoxic mechanism, which involves interference with the functioning of the thyroid peroxidase, resulting in a reduction in circulating thyroid hormone concn and incr secretion of thyroid stimulating hormone. Consequently, ethylenethiourea would not be expected to produce thyroid cancer in humans exposed to concn that do not alter thyroid hormone homeostasis. An additional consideration of the Working Group, based on lack of genotoxicity of ethylenethiourea, was that the liver tumors in mice and benign tumors in rats were also produced by a non-genotoxic mechanism. Evidence from epidemiological studies and from toxicological studies in experimental animals provide compelling evidence that rodents are substantially more sensitive than humans to the development of thyroid tumors in response to thyroid hormone imbalance. For more Human Toxicity Excerpts (Complete) data for Ethylene thiourea (7 total), please visit the HSDB record page.
- Skin corrosion/irritation: No data available.
- Serious eye damage/eye irritation: No data available.
- Respiratory or skin sensitization: No data available.
- Germ cell mutagenicity: Evaluation: There is inadequate evidence in humans for the carcinogenicity of ethylenethiourea. There is sufficient evidence in experimental animals for the carcinogenicity of ethylenethiourea. Overall evaluation: Ethylenethiourea is not classifiable as to its carcinogenicity to humans (Group 3). In making its evaluation, the Working Group concluded that ethylenethiourea produces thyroid tumors in mice and rats by a non-genotoxic mechanism, which involves interference with the functioning of the thyroid peroxidase, resulting in a reduction in circulating thyroid hormone concn and incr secretion of thyroid stimulating hormone. Consequently, ethylenethiourea would not be expected to produce thyroid cancer in humans exposed to concn that do not alter thyroid hormone homeostasis. An additional consideration of the Working Group, based on lack of genotoxicity of ethylenethiourea, was that the liver tumors in mice and benign tumors in rats were also produced by a non-genotoxic mechanism. Evidence from epidemiological studies and from toxicological studies in experimental animals provide compelling evidence that rodents are substantially more sensitive than humans to the development of thyroid tumors

in response to thyroid hormone imbalance.
- Carcinogenicity: Cancer Classification: Group B2 Probable Human Carcinogen Evaluation: There is inadequate evidence in humans for the carcinogenicity of ethylenethiourea. There is sufficient evidence in experimental animals for the carcinogenicity of ethylenethiourea. Overall evaluation: Ethylenethiourea is not classifiable as to its carcinogenicity to humans (Group 3). In making its evaluation, the Working Group concluded that ethylenethiourea produces thyroid tumors in mice and rats by a non-genotoxic mechanism, which involves interference with the functioning of the thyroid peroxidase, resulting in a reduction in circulating thyroid hormone concn and incr secretion of thyroid stimulating hormone. Consequently, ethylenethiourea would not be expected to produce thyroid cancer in humans exposed to concn that do not alter thyroid hormone homeostasis. An additional consideration of the Working Group, based on lack of genotoxicity of ethylenethiourea, was that the liver tumors in mice and benign tumors in rats were also produced by a non-genotoxic mechanism. Evidence from epidemiological studies and from toxicological studies in experimental animals provide compelling evidence that rodents are substantially more sensitive than humans to the development of thyroid tumors in response to thyroid hormone imbalance.
- Reproductive toxicity: irritation eyes; In Animals: thickening of the skin; goiter; teratogenic effects; [potential occupational carcinogen] /SIGNS AND SYMPTOMS/ Short Term Exposure: Inhalation can cause irritation of the respiratory tract with soreness, hoarseness, cough, and phlegm. High exposure can cause sweating, thirst, nausea, an increase in the heart rate and blood pressure that can last for hours or days. Higher exposures can cause pulmonary edema, a medical emergency that can be delayed for several hours. This can cause death. Contact can cause irritation of the skin and eyes and may cause eye burns. A related chemical, Ziram, can cause brain swelling and hemorrhage with muscle weakness and liver and kidney effects. Long Term Exposure: Ethylene thiourea has been shown to be carcinogenic and teratogenic (causing malformation in offspring) in laboratory animals. In addition, ethylene thiourea can cause myxedema (the drying and thickening of skin, together with a slowing down of physical and mental activity), goiter, and other effects related to decreased output of thyroid hormone. Maneb, a related fungicide, can cause nerve damage.
- STOT-single exposure: /LABORATORY ANIMALS: Acute Exposure/ The effect of ETU on microsomal enzymes was studied by measuring the hexobarbital sleeping time of male and female rats (strain unknown) after administration in single oral doses of 20, 50, 100, and 200 mg/kg or in the diet at levels of 200 and 300 ppm and by determining the aminopyrine-n-demethylase and aniline hydroxylase activities in livers of male rats given single oral doses of 20, 50, 100, and 200 mg/kg. ETU increased the sleeping time at all dose levels 1 day after single exposure, but the increase was significant only with 50, 100, and 200 mg/kg in males and 200 mg/kg in females. All doses caused an initial inhibition of aminopyrine-n-demethylase and aniline hydroxylase activities in livers of male rats, followed by a dose-related increase.
- STOT-repeated exposure: No data available.
- Aspiration hazard: No data available.

Likely routes of exposure
- /SIGNS AND SYMPTOMS/ Short Term Exposure: Inhalation can cause irritation of the respiratory tract with soreness, hoarseness, cough, and phlegm. High exposure can cause sweating, thirst, nausea, an increase in the heart rate and blood pressure that can last for hours or days. Higher exposures can cause pulmonary edema, a medical emergency that can be delayed for several hours. This can cause death. Contact can cause irritation of the skin and eyes and may cause eye burns. A related chemical, Ziram, can cause brain swelling and hemorrhage with muscle weakness and liver and kidney effects. Long Term Exposure: Ethylene thiourea has been shown to be carcinogenic and teratogenic (causing malformation in offspring) in laboratory animals. In addition, ethylene thiourea can cause myxedema (the drying and thickening of skin, together with a slowing down of physical and mental activity), goiter, and other effects related to decreased output of thyroid hormone. Maneb, a related fungicide, can cause nerve damage.

Symptoms related to the physical, chemical and toxicological characteristics
- irritation eyes; In Animals: thickening of the skin; goiter; teratogenic effects; [potential occupational carcinogen]

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity
Not available.

12.2 Persistence and degradability
Not available.

12.3 Bioaccumulative potential
Not available.

12.4 Mobility in soil
Not available.

12.5 Results of PBT and vPvB assessment
Not available.

12.6 Endocrine disrupting properties
Not available.

12.7 Other adverse effects
Not available.

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/container in accordance with local/regional/national/international regulations. Do not discharge to drains or the environment.
Contaminated packaging: Dispose of as unused product or according to local regulations.
Waste codes: Not available.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number
Not available.

14.2 UN proper shipping name
Not available.

14.3 Transport hazard class(es)
Not available.

14.4 Packing group
Not available.

14.5 Environmental hazards
Not available.

14.6 Special precautions for user
Not available.

14.7 Maritime transport in bulk according to IMO instruments
Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
Not available.

15.2 Chemical safety assessment
Not available.

SECTION 16: Other information

SECTION 16: Other information

Product identifier: 2-Imidazolidinethione
CAS No.: 96-45-7
Catalog No.: CS-T-29178
Synonyms: 1,3-Ethylenethiourea; 2-Imidazoline-2-thiol; 2-Mercapto-2-imidazoline; 2-Mercapto-4,5-dihydroimidazole
Supplier: Clearsynth Labs Ltd., Mumbai, India
Emergency phone: +91-22-245045900

Disclaimer: The information provided is believed to be accurate based on available data, but no warranty is expressed or implied. Users are responsible for determining suitability for their particular application and for complying with applicable laws and regulations.
Revision date: Not available.

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