Material Safety Data Sheet
Thiourea, 99%

ACC# 96579

Section 1 - Chemical Product and Company Identification

MSDS Name: Thiourea, 99%
Catalog Numbers: AC138910000, AC138910010, AC138910030, AC138915000
Synonyms: Thiocarbamide; Thiourea; Isothiourea; Thiocarbonic acid diamide; Sulourea.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
62-56-6	Thiourea	99	200-543-5

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: white crystals.
Warning! Harmful if swallowed. Causes respiratory tract irritation. May cause allergic skin reaction. Causes eye and skin irritation. May cause cancer based on animal studies. This substance has caused adverse reproductive and fetal effects in animals.
Target Organs: Blood, liver, bone marrow, thyroid, reproductive system.

Potential Health Effects
Eye: Causes eye irritation.
Skin: Causes skin irritation. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
Ingestion: Harmful if swallowed. May cause severe irritation of the digestive tract. May cause anemia, leukopenia (reduction in the number of white blood cells in the blood), and thrombocytopenia. May cause bone marrow depression.
Inhalation: May cause respiratory tract irritation.
Chronic: May cause cancer according to animal studies. May cause reproductive and fetal effects. Prolonged or repeated exposure may cause thyroid damage. Chronic exposure may cause liver damage. Laboratory experiments have resulted in mutagenic effects. Thiourea has an antithyroid effect and it is possible that fetal goiter might be produced by sufficient maternal exposure to this agent. Thiourea was teratogenic in rats exposed to a 0.2% solution as drinking water.

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, immediately flush skin with soap and plenty of water. Remove contaminated clothing and shoes. Get medical aid if symptoms occur. Wash clothing before reuse.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Dusts may be an explosion hazard if mixed with air at critical proportions and in the presence of an ignition source.
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or appropriate foam.
Flash Point: Not available.
Autoignition Temperature: 440 deg C (824.00 deg F)
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches

which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Use only with adequate ventilation. Avoid breathing dust.
Storage: Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Thiourea	none listed	none listed	none listed

OSHA Vacated PELs: Thiourea: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Crystals
Appearance: white
Odor: odorless
pH: Not available.
Vapor Pressure: 2.5 mm Hg @ 25 deg C
Vapor Density: 2.6
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Decomposes.
Freezing/Melting Point:176-178 deg C
Decomposition Temperature:> 180 deg C
Solubility: Soluble.
Specific Gravity/Density:1.405
Molecular Formula:CH4N2S
Molecular Weight:76.12

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Polymerization may occur upon heating.
Conditions to Avoid: Mechanical shock, dust generation, excess heat.
Incompatibilities with Other Materials: Oxidizing agents, strong acids, strong bases, acrolein, nitric acid, hydrogen peroxide, acrylaldehyde.
Hazardous Decomposition Products: Nitrogen oxides, carbon monoxide, oxides of sulfur, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 62-56-6: YU2800000
LD50/LC50:
CAS# 62-56-6:
Draize test, rabbit, eye: 14%;
Oral, rat: LD50 = 125 mg/kg;
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Carcinogenicity:
CAS# 62-56-6:

- **ACGIH:** Not listed.
- **California:** carcinogen, initial date 1/1/88
- **NTP:** Suspect carcinogen
- **IARC:** Not listed.

Epidemiology: No data available.
Teratogenicity: Oral, rat: TDLo = 240 mg/kg (female 12 day(s) after conception) Specific Developmental Abnormalities - Central Nervous Systemand musculoskeletal system.; Oral, rat: TDLo = 1400 mg/kg (female 16-22 day(s) after conception) Specific Developmental Abnormalities - endocrine system.
Reproductive Effects: Oral, rat: TDLo = 1 gm/kg (female 12 day(s) after conception) = Fertility - post-implantation mortality (e.g. dead and/or resorbed implants per total number of implants).; Oral, hamster: TDL0 = 22400 mg/kg (female 10 week(s) pre-mating) Maternal Effects - uterus, cervix, vagina and other effects.; Oral, domestic mammal: TDLo = 9 gm/kg (male 90 day(s) pre-mating) Paternal Effects - spermatogenesis (incl. genetic material, sperm morphology, motility, and count) and other effects on male
Mutagenicity: DNA Inhibition: Human, Fibroblast = 60 mmol/L.; DNA Inhibition: Human, Lymphocyte = 20 mmol/L.; DNA Inhibition: Human, HeLa cell = 140 mmol/L.; Morphological Transformation: Rat, Embryo = 100 mg/L.; DNA Damage: Rat, Liver = 30 mmol/L.; Mutation in Mammalian Somatic Cells: Hamster, Lung = 10 mmol/L.
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: Fish: Fathead Minnow: LC50 > 600 mg/L; 96 Hr; UnspecifiedBacteria: Phytobacterium phosphoreum: EC50 = 3400 mg/L; 15 min; Microtox testWater flea Daphnia: LC50 = 1.8 mg/L; Unspecified; Unspecified If released to water, thiourea will react with hydroxyl radicals in sunlit natural waters with an estimated half-life of 171 days. Hydrolysis, volatilization, adsorption to sediments, and bioconcentration are not expected to be important aquatic fate processes. Thiourea appears to be generally resistant to aquatic biodegradation as demonstrated by various standard biodegradation tests.
Environmental: If released to soil, thiourea may degrade by both chemical and microbial degradation, although elevated levels of thiourea may suppress microflora activity for extended periods of time. In one soil degradation study, thiourea persisted for periods in excess of 15 weeks. It is expected to be highly mobile in soil and susceptible to leaching. If released to the atmosphere, thiourea may be associated with particulate matter suggesting potential importance of wet and dry deposition. Thiourea existing as free vapor-phase is expected to react with photochemically-produced hydroxyl radicals.
Physical: No information available.
Other: Testicular toxicity of thiourea has been demonstrated in fish exposed to concentrations of 300 ppm.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series:
CAS# 62-56-6: waste number U219.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	TOXIC SOLIDS, ORGANIC, N.O.S.	TOXIC SOLID ORGANIC NOS (THIOUREA)
Hazard Class:	6.1	6.1
UN Number:	UN2811	UN2811
Packing Group:	III	III

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 62-56-6 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 62-56-6: 10 lb final RQ; 4.54 kg final RQ
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 62-56-6: immediate, delayed.
Section 313
This material contains Thiourea (CAS# 62-56-6, 99%),which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 62-56-6 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:

WARNING: This product contains Thiourea, a chemical known to the state of California to cause cancer.
California No Significant Risk Level: CAS# 62-56-6: 10 æg/day NSRL

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

XN N

Risk Phrases:

R 22 Harmful if swallowed.
R 40 Limited evidence of a carcinogenic effect.
R 63 Possible risk of harm to the unborn child.
R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 36/37 Wear suitable protective clothing and gloves.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 62-56-6: 2

Canada - DSL/NDSL

CAS# 62-56-6 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1B, D2A.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 62-56-6 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 6/08/1999
Revision #5 Date: 10/03/2005