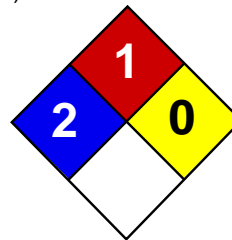




**Science Lab.com**  
Chemicals & Laboratory Equipment



Health	2
Fire	1
Reactivity	0
Personal Protection	E

## Material Safety Data Sheet

### Methotrexate MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Methotrexate

**Catalog Codes:** SLM2047, SLM3421

**CAS#:** 59-05-2

**RTECS:** MA1225000

**TSCA:** TSCA 8(b) inventory: Methotrexate

**CI#:** Not available.

**Synonym:** Amethopterin, Amethopterine, Antifolin, Methotrexat, Methyaminopterin, Methyaminopterium, Ledertrexate; 4-Amino-4-deoxy-N(sup 10)-methylpteroylglutamate; 4-Amino-4-deoxy-N(sup 10)-methylpteroylglutamic acid; 4-Amino-N(sup 10)-methylpteroylglutamic acid

**Chemical Name:** N-[4-[(2,4-Diamino-6-pteridiny)]methyl]methylamino]benzoyl]-L-glutamic acid

**Chemical Formula:** C<sub>20</sub>H<sub>22</sub>N<sub>8</sub>O<sub>5</sub>

#### Contact Information:

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

##### Composition:

Name	CAS #	% by Weight
Methotrexate	59-05-2	100

**Toxicological Data on Ingredients:** Methotrexate: ORAL (LD50): Acute: 135 mg/kg [Rat]. 146 mg/kg [Mouse].

#### Section 3: Hazards Identification

##### Potential Acute Health Effects:

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Severe over-exposure can result in death.

##### Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, kidneys, lungs, liver, gastrointestinal tract, immune system, bone marrow. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. Seek medical attention.

### Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** May be combustible at high temperature.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** Not available.

**Flammable Limits:** Not available.

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>), nitrogen oxides (NO, NO<sub>2</sub>...).

### Fire Hazards in Presence of Various Substances:

Slightly flammable to flammable in presence of heat. Non-flammable in presence of shocks.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Slightly explosive in presence of open flames and sparks.

### Fire Fighting Media and Instructions:

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

**Special Remarks on Fire Hazards:** When heated to decomposition it emits toxic fumes including oxides of nitrogen, CO, and CO<sub>2</sub>

### Special Remarks on Explosion Hazards:

Fine dust dispersed in air in sufficient concentrations, and in the presences of an ignition source is a potential dust explosion hazard.

## Section 6: Accidental Release Measures

**Small Spill:** Use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large Spill:**

Poisonous solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## Section 7: Handling and Storage

### Precautions:

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

### Storage:

Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 6°C (42.8°F). Refrigerate at 2 - 6 degrees C. Sensitive to light. Store in light-resistant containers.

## Section 8: Exposure Controls/Personal Protection

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:** Not available.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Solid. (Solid crystalline powder.)

**Odor:** Odorless.

**Taste:** Not available.

**Molecular Weight:** 454.44 g/mole

**Color:** Yellow

**pH (1% soln/water):** Not applicable.

**Boiling Point:** Not available.

**Melting Point:** Decomposition temperature: 185°C (365°F)

**Critical Temperature:** Not available.

**Specific Gravity:** Not available.

**Vapor Pressure:** Not applicable.

**Vapor Density:** Not available.

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** Not available.

**Solubility:**

Insoluble in cold water, hot water, diethyl ether. Soluble in dilute solutions of alkali hydroxides, and carbonates. Slightly soluble in hydrochloric acid. Insoluble in alcohol and chloroform.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Excess heat, light, moisture, incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, acids.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Sensitive to light. Hygroscopic; keep container tightly closed.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 135 mg/kg [Rat].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: 3 (Not classifiable for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. May cause damage to the following organs: blood, kidneys, lungs, liver, gastrointestinal tract, immune system, bone marrow.

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:**

Passes through the placental barrier. Excreted in maternal milk in human. May cause adverse reproductive effects (testicular and ovarian damage, sperm abnormalities, menstrual disorders, fetotoxicity, embryotoxicity, post-implantation mortality), and birth defects (teratogenic). May cause cancer based on animal test data. According to IARC, there is inadequate data for evidence of carcinogenicity in humans. May affect genetic material (mutagenic)

**Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: May cause skin irritation. May cause dermatitis Eyes: May cause eye irritation. Inhalation: May cause respiratory tract irritation. May cause symptoms similar to those described for ingestion. Ingestion: Harmful if swallowed! Can cause gastrointestinal tract irritation with stomach pains, nausea, stomatitis, vomiting, diarrhea, gastrointestinal bleeding, mucosal ulceration. It can also cause a skin rash or total body redness, blurred vision, decreased resistance to infection, and affect the cardiovascular system (blood pressure lowering), respiration (dyspnea, cough, cyanosis, fibrosis, respiratory obstruction), brain, spinal cord, metabolism, liver (elevation of serum levels of liver enzymes, hepatitis, fatty liver degeneration), kidneys (kidney damage and failure), bone marrow (bone marrow suppression), and blood (leukopenia, thrombocytopenia, aplastic anemia, behavior/central nervous system (dizziness, fatigue, chills, drowsiness, headache, convulsions, somnolence, abnormal reflexes, abnormal sensorimotor signs, motor dysfunction, paralysis, palsies, and seizures. Chronic Potential Health Effects: All of the acute effects mentioned above can occur with prolonged or repeated exposure.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Toxic solid, organic, n.o.s. (Methotrexate) UNNA: 2811 PG: III

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

**Federal and State Regulations:**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Methotrexate California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: Methotrexate Massachusetts RTK: Methotrexate New Jersey: Methotrexate TSCA 8(b) inventory: Methotrexate

**Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:**

**WHMIS (Canada):** Not controlled under WHMIS (Canada).

**DSCL (EEC):**

R25- Toxic if swallowed. R46- May cause heritable genetic damage. R61- May cause harm to the unborn child. S28- After contact with skin, wash immediately with plenty of [\*\*\*] S36- Wear suitable protective clothing. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S53- Avoid exposure - obtain special instructions before use.

**HMIS (U.S.A.):**

**Health Hazard:** 2

**Fire Hazard:** 1

**Reactivity:** 0

**Personal Protection:** E

**National Fire Protection Association (U.S.A.):**

**Health:** 2

**Flammability:** 1

**Reactivity:** 0

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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