



MATERIAL SAFETY DATA SHEET

Olin MSDS No.: 00080.0001 Revision Date: 1/1/11
Revision No.: 13 Supercedes: 1/1/10

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: NORMAL LEAD STYPHNATE
Chemical Name: Lead trinitroresorcinate
Synonyms: Lead trinitroresorcinate
Chemical Family: Styphnic acid salt
Formula: C6HN3O8Pb
Product Use: Initiating explosive

COMPANY ADDRESS MSDS Control Group Olin Corporation - Winchester Division, Inc. 600 Powder Mill Road East Alton, IL 62024 www.winchester.com
TECHNICAL INFORMATION: 618-258-3507
EMERGENCY TELEPHONE NUMBER: 618-258-2111

2. COMPOSITION/INFORMATION ON INGREDIENTS

Table with 6 columns: CAS Number, Components, % By Weight, EINECS/ ELINCS #, EU Classification (Symbol, R-Phrase). Row 1: 15245-44-0, Normal Lead styphnate, 100, 239-290-0, E, T, N, R61-3-20/22-33-50/53-62

OSHA REGULATORY STATUS: Explosive, skin and eye irritant; lung, kidney, nervous system, blood and reproductive toxin; toxic, carcinogen.

3. HAZARDS IDENTIFICATION

DANGER!
EXPLOSIVE. DO NOT SUBJECT TO MECHANICAL SHOCK OR HEAT. HARMFUL IF INHALED, SWALLOWED OR ABSORBED THROUGH SKIN. CAN CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. CONTAINS A MATERIAL WHICH MAY CAUSE KIDNEY, BLOOD, DEVELOPMENTAL, REPRODUCTIVE AND NERVOUS SYSTEM EFFECTS. CONTAINS A MATERIAL WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA. USE ONLY WITH ADEQUATE VENTILATION. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

HAZARD RATINGS (for dust or fume) Degree of hazard (0 = low, 4 = extreme)
Hazardous Materials Identification System (HMIS) Health: 3* Flammability: 2 Physical Hazard: Explosive: 4
National Fire Protection Association (NFPA) Mixture. Not rated.

HUMAN THRESHOLD RESPONSE DATA

Odor Threshold: Unknown
Irritation Threshold: Unknown
Immediately Dangerous to Life or Health (IDLH) Value(s): The IDLH for this product is not known. The IDLH for lead is 100 mg/m3.

POTENTIAL HEALTH EFFECTS

ACUTE EFFECTS

Eye: Dust or fume can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.
Skin: Contact with dust may cause irritation consisting of redness and/or swelling. May be harmful if absorbed through skin.
Inhalation: Harmful if inhaled. Inhalation of high concentrations may cause respiratory and nasal irritation, coughing, and difficulty breathing.

Ingestion: Ingestion may cause nausea, vomiting, constipation, cramps, and or stomach pain.
CHRONIC EFFECTS: Prolonged or repeated skin contact may cause more severe irritation or dermatitis. Prolonged or repeated inhalation may cause more severe irritation and possibly lung damage. Chronic exposure to lead can cause kidney damage, anemia, reproductive effects, developmental effects and permanent nervous system damage in humans including changes in cognitive function.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Exposure may aggravate an existing dermatitis, blood condition, asthma, kidney disease, emphysema, or other respiratory disease.

POTENTIAL ENVIRONMENTAL EFFECTS: Lead styphnate is considered to be dangerous to the environment and very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

EYE CONTACT: Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If eye irritation develops, call a physician at once.
SKIN CONTACT: If exposed, wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes and launder before reuse. If skin irritation or rash develops and persists or recurs, get medical attention.
INHALATION: If inhaled remove from exposure area to fresh air. If breathing has stopped, perform artificial respiration. If breathing is difficult, give oxygen. Keep affected person warm and at rest. Get medical attention immediately.
INGESTION: If swallowed, induce vomiting immediately, as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
NOTE TO PHYSICIANS: There is no specific antidote to the active ingredients in this product; use symptomatic treatment.

5. FIRE FIGHTING MEASURES

PROPERTY	VALUE	PROPERTY	VALUE
Explosive	Yes	Flammable	No
Combustible	No	Pyrophoric	No
Flash Point (°C):	Not applicable	Burning Rate of Material:	Not applicable
Lower Explosive Limit:	Not applicable	Autoignition Temp.:	No data
Upper Explosive Limit:	Not applicable	Flammability Classification: (defined by 29 CFR 1910.1200)	Explosive

UNUSUAL FIRE AND EXPLOSION HAZARDS: Subject to mechanical shock. Material involved in a fire may not be totally destroyed and will still be subject to detonation. Dust may cause an ignitable and/or an explosive atmosphere.
EXTINGUISHING MEDIA: Water spray. Apply by mechanical means only. Fight all fires from an explosion resistant location. Evacuate all non-essential personnel.
SPECIAL FIREFIGHTING PROCEDURES: Use water to cool containers exposed to fire. Do not move material exposed to or involved in a fire. Use extreme caution working around this material and avoid any form of mechanical shock. Keep material wet if possible. "DO NOT ALLOW TO DRY."

6. ACCIDENTAL RELEASE MEASURES

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

THIS PRODUCT WILL REPRESENT AN EXPLOSION HAZARD. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. A spill of this material will require extreme caution. Use non-sparking equipment to clean up spill. Keep material wet at all times. If a large spill occurs create a dike and flood with large amounts of water. If a large spill occurs, call 1-888-289-1911 for technical assistance.

7. HANDLING AND STORAGE

HANDLING: DO NOT SUBJECT TO MECHANICAL SHOCK. Avoid dispersion of dust in air.
STORAGE: Store in a cool, dry, well-ventilated place away from all sources of ignition.
Shelf Life Limitations: 2 years
Incompatible Materials for Packaging: Store as prescribed by Bureau of Alcohol, Tobacco and Firearms guidelines for explosive storage.
Incompatible Materials for Storage or Transport: Class B & C explosives, strong oxidizers, acids, and caustics.

OTHER PRECAUTIONS: Explodes at 270°C (518°F) Avoid friction - material is extremely hazardous when dry.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS #	CHEMICAL NAME	ACGIH TLV	OSHA PEL	INTERNATIONAL OELS
15245-44-0	Lead styphnate	None established	None established	None established

ENGINEERING CONTROLS: Local explosion-proof exhaust ventilation is recommended if significant dusting occurs or fumes are generated. Otherwise, use general explosion-proof exhaust ventilation.

EYE / FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Wear impervious (cut-resistant) gloves and other protective clothing (aprons, coveralls) as appropriate to prevent skin contact when using this product. If generating a dust, wash thoroughly after handling, especially before eating, drinking, or smoking.

RESPIRATORY PROTECTION: Respiratory protection not normally needed. If dusting occurs or fumes are generated above the PEL/TLV, use a NIOSH-approved half-face or full-face respirator equipped with High Efficiency Particulate (HEPA) filter cartridges.

GENERAL HYGIENE CONSIDERATIONS: Do not eat, drink, or smoke while using this product in dust form.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	VALUE	PROPERTY	VALUE
<i>Appearance:</i>	Hexagonal plates	<i>Vapor Density (air = 1):</i>	Not applicable
<i>Odor:</i>	None	<i>Boiling Point (°F):</i>	No data
<i>Molecular Weight:</i>	450.3	<i>Melting point:</i>	Not applicable
<i>Physical State:</i>	Solid	<i>Specific gravity (g/cc):</i>	3
<i>pH:</i>	5 - 6 (solution)	<i>Bulk Density</i>	1.5 g/cc
<i>Vapor Pressure (mm Hg):</i>	Not applicable	<i>Viscosity (cps):</i>	Not applicable
<i>Vapor Density</i>	Not applicable	<i>Decomposition Temperature:</i>	Explodes at 270°C (518°F)
<i>Solubility in Water (20 °C):</i>	< 0.02%	<i>Evaporation Rate:</i>	Not Applicable
<i>Volatiles, Percent by volume:</i>	Not applicable	<i>Octanol/water partition coefficient:</i>	Unknown

10. STABILITY AND REACTIVITY

STABILITY: Will explode with mechanical impact or shock

CONDITIONS TO AVOID: Heat, mechanical impact or shock, electrical discharge.

MATERIALS TO AVOID: Acetylene, chlorine

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to decomposition, may produce metal oxides and fumes, irritating aldehydes and ketones.

HAZARDOUS POLYMERIZATION: Will not occur.

OTHER: Do not handle material dry except in extremely small amounts.

11. TOXICOLOGICAL INFORMATION

POTENTIAL EXPOSURE ROUTES: ingestion, inhalation, and eye and skin contact.

ACUTE ANIMAL TOXICITY DATA:

Oral LD ₅₀	Believed to be toxic
Dermal LD ₅₀	Believed to be toxic
Inhalation LC ₅₀	Believed to be toxic
Irritation	Eye, skin and respiratory irritant

SUBCHRONIC/ CHRONIC TOXICITY: No information for product. Lead has caused blood, kidney and nervous system damage in laboratory animals.

CARCINOGENICITY: The International Agency for Research on Cancer (IARC) lists lead as possibly carcinogenic to humans, group 2B.

MUTAGENICITY: This product is not known or reported to be mutagenic. Lead has been shown to be mutagenic in several *in vitro* assays.

**REPRODUCTIVE, TERATOGENICITY,
OR DEVELOPMENTAL EFFECTS:**

This product is not known or reported to cause reproductive or developmental effects. Lead has been shown to affect fetal development including birth defects and reduce male reproductive function in laboratory animals.

NEUROLOGICAL EFFECTS:

This product is not known or reported to cause neurological effects. Lead has caused peripheral and central nervous system damage and behavioral effects in laboratory animals.

**INTERACTIONS WITH OTHER
CHEMICALS WHICH ENHANCE
TOXICITY:**

None known or reported.

12. ECOLOGICAL INFORMATION

ECOTOXICITY: No data is available on this product. Individual constituents are as follows:

Lead: LC₅₀ (48 hrs.) to bluegill (*Lepomis macrochirus*) is reported to be 2 - 5 mg/l. Lead is toxic to waterfowl.

MOBILITY: Dissolved lead may migrate through soil.

PERSISTENCE/DEGRADABILITY: Not biodegradable. Lead may persist and accumulate in the environment.

BIOACCUMULATION: No data.

13. DISPOSAL CONSIDERATIONS

Care must be taken to prevent environmental contamination from the use of this material. The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.

14. TRANSPORT INFORMATION

	U.S. DOT	RID/ADR	IMDG	IATA/ICAO	Canada TDG
PROPER SHIPPING NAME:	Lead trinitroresorcinate, wetted	Lead styphnate (Lead trinitroresorcinate), wetted with not less than 20% water or mixture of alcohol and water, by mass	Lead styphnate (Lead trinitroresorcinate), wetted with not less than 20% water or mixture of alcohol and water, by mass	Forbidden	Lead styphnate (Lead trinitroresorcinate), wetted with not less than 20% water or mixture of alcohol and water, by mass
HAZARD CLASS:	1.1A	1.1A	1.1A		1.1A
UN NO.:	UN0130	UN0130	UN0130		UN0130
PACKING GROUP:	II	II	II		II
LABEL:	1.1A/1.1 Placard	1.1A/1.1 Placard	1.1A/1.1 Placard		1.1A/1.1 Placard
REPORTABLE QUANTITY:	Not applicable	Not applicable	Not applicable		
SPECIAL COMMENTS:	<p>Forbidden on passenger or cargo only aircraft. Forbidden on passenger vessel. Subject to 49 CFR176.84 stowage E and codes 2E, 6E.</p> <p>Explosive substances of Division 1.1 Compatibility Group A (1.1A) are forbidden for transportation if dry or not desensitized, unless incorporated in a device.</p> <p>If shipment of the explosive substance is to take place at a time that freezing weather is anticipated, the water contained in the explosive substance must be mixed with denatured alcohol so that freezing will not occur.</p>	<p>This substance, when containing less alcohol, water or phlegmatizer than specified, shall not be carried unless specifically authorized by the competent authority.</p>	<p>This substance, when containing less alcohol, water or phlegmatizer than specified, should not be transported, unless specifically authorized by the competent authority.</p> <p>Sensitive substances used in detonators, which become extremely sensitive if they lose their wetting agents. This substance, when containing less alcohol, water or phlegmatizer than specified, should not be transported, unless specifically authorized by the competent authority.</p>		<p>Forbidden by passenger carrying ship, roadway vehicle or railway.</p> <p>1) A person must not transport more than 1 kg of these explosives on a road vehicle without an Explosive Vehicle Certificate (EVC).</p> <p>(2) A person must not transport more than 2 000 kg of these explosives on a road vehicle. These dangerous goods are forbidden for transport if they contain less alcohol, water or phlegmatizer than specified in the descriptive text associated with the shipping name.</p>

15. REGULATORY INFORMATION

US FEDERAL

TSCA	The component in this product is listed on the Toxic Substance Control Act inventory.			
CERCLA:	Not listed.			
SARA 313:	Lead and lead compounds			
SARA 313 Hazard Class:	<u>Health:</u> Acute – Yes Chronic - Yes	<u>Fire:</u> None	<u>Reactivity:</u> None	<u>Release of Pressure:</u> Yes
SARA 302 EHS List:	Not listed.			

STATE RIGHT-TO-KNOW STATUS

Component	*CA Prop. 65	New Jersey	Pennsylvania	Massachusetts	Michigan
Lead styphnate	X	Not listed	Not listed	X	Not listed

* "WARNING: This product contains detectable amounts of a chemical(s) known to the State of California to cause cancer and/or birth defects or other reproductive harm."

EUROPEAN REGULATIONS

Hazard Classification

Danger Symbol:	E	Explosive
	T	Toxic
	N	Dangerous to the environment
Risk Phrases:	R61	May cause harm to the unborn child
	R3	Extreme risk of explosion by shock, friction, fire or other sources of ignition
	R20/22	Harmful by inhalation and if swallowed
	R33	Danger of cumulative effects
	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
	R62	Possible risk of impaired fertility
Safety Phrases:	S28	After contact with skin, wash immediately with plenty of soap and water
	S33	Take precautionary measures against static discharges
	S5	This material and its container must be disposed of in a safe way
	S48	Keep wetted with water
	S57	Use appropriate containment to avoid environmental contamination
Contains:	Lead Styphnate, EINECS No.: 239-290-0	

German WGK Classification: 3

CANADIAN REGULATIONS

DSL LIST: The components of this product are on the DSL or are exempt from reporting under the New Substances Notification Regulations.
 IDL: Not listed
 WHMIS: This product is regulated as an Explosive Class 3.2 in Canada

16. OTHER INFORMATION

REVISIONS: New international format, toxicology review – 1/1/03; 7/1/09 – changed emergency contract number and mailing address; 1/1/11 - review

PREPARED BY: Olin Corporation

NOTICE: THE INFORMATION IN THIS MSDS SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND CURRENT AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS.