



Olin MSDS No.: 00064.0001 Revision Date: 1/1/13 Revision No.: 20 Supercedes: 3/20/12

TECHNICAL

PRODUCT AND COMPANY IDENTIFICATION

BALL POWDER® PROPELLANT Product Name:

Chemical Name: Mixture

Synonyms: Smokeless Powder, Double Base Propellant

Chemical Family: Mixture

Formula: Not applicable - mixture Propellant explosive, solid Product Use:

COMPANY ADDRESS MSDS Control Group

Olin Corporation – Winchester

Division, Inc.

600 Powder Mill Road East Alton, IL 62024

www.winchester.com

EMERGENCY TELEPHONE NUMBER:

INFORMATION: US/Canada: 1-800-424-9300 618-258-3507

Outside US/Canada: 703-527-3887

Customer #: ccn24728

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Components	% By Weight	EINECS/ ELINCS #	EU Cla	ssification
				Symbol	R-Phrase
55-63-0	Nitroglycerin	10 – 30	200-240-8	E, T+, N	R 3-26/27/28-33-
		or			51-53
		30 - 60			
84-74-2	Dibutyl phthalate	1 - 5	201-55-74	None	None
Proprietary	Polyester adipate	1 - 5	N.A.	N.A.	N.A.
85-98-3	Ethyl centralite (diethyl-diphenylurea)	3 - 7	291-645-2	Xi*	R36/37/38
8050-09-7	Rosin	1 - 5	232-475-7	Xi	R 43
141-78-6	Ethyl acetate	0.5 – 1.5	205-500-4	F, Xi	R11-36-66-67
122-39-4	Diphenylamine	0.5 – 1.5	204-539-4	T, N	R23/24/25-33- 50/53
86-30-6	N-nitrosodiphenyl amine	0.1 - 1	201-663-0	T, Xi	R 36/38-40
7757-79-1	Potassium nitrate	0.5 – 1.5	231-818-8	O*, Xi	R8-36/38
7778-80-5	Potassium sulfate	0.5 – 1.5	231-915-5	None	None
9004-70-0	Nitrocellulose	40 - 70	Not listed	E*	R 2
7782-42-5	Graphite	0.02 – 1	Not listed		

N.A. = not applicable; *This material is not listed in Annex 1 of Directive 88/379/EEC. Olin has classified the material according to the conventional method based upon information from similar materials.

OSHA REGULATORY STATUS: Explosive, toxic by ingestion and inhalation, irritant, sensitizer, kidney, liver and blood toxin

3. HAZARDS IDENTIFICATION

DANGER!

EXPLOSIVE. DO NOT SUBJECT TO MECHANICAL SHOCK OR IMPACT OR STATIC DISCHARGE. DO NOT USE NEAR OPEN FLAME. EXPOSURE TO DUST CAN CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION. HARMFUL OR FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. EXPOSURE TO DUST CAN CAUSE RESPIRATORY SYSTEM DAMAGE. MAY CAUSE KIDNEY, LIVER AND BLOOD DAMAGE BASED ON ANIMAL DATA. CAN CAUSE AN ALLERGIC SKIN REACTION. DO NOT TAKE INTERNALLY. USE ONLY WITH ADEQUATE VENTILATION. AVOID BREATHING DUST. KEEP CONTAINER CLOSED. AVOID CONTACT WITH EYES, SKIN AND CLOTHING. WASH THOROUGHLY AFTER HANDLING.

HAZARD RATINGS (for dust or fume)

Degree of hazard (0 = low, 4 = extreme)



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<u>Hazardous Materials Identification System (HMIS)</u> Health: 2* Flammability: 3 Physical Hazard:

Explosive: 2

Unstable Reactive: 3
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 dibutyl phthalate

is 4000 mg/m³. The IDLH for nitroglycerin is 75 mg/m³.

POTENTIAL HEALTH EFFECTS

ACUTE EFFECTS

Eye: Can cause irritation consisting of redness, swelling, and pain. May cause conjunctivitis with repeated exposures.

Skin: May be harmful or fatal if absorbed through skin. Contact with dust may cause irritation consisting of redness and/or

swelling.

Inhalation: Harmful or fatal if inhaled. Inhalation of high concentrations of powder, dust, or fume may cause respiratory and nasal

irritation, coughing, and difficulty breathing.

Ingestion: Harmful or fatal if swallowed. Ingestion of dust may cause nausea, vomiting, constipation, cramps, and or stomach

pain. Ingestion of large doses of potassium nitrate can lead to the development of methemoglobinemia (inability of

the blood to carry sufficient oxygen). It is not anticipated that exposure from this product would cause this effect.

<u>CHRONIC</u> Prolonged or repeated skin contact with dust may cause more severe irritation or dermatitis. Prolonged or repeated EFFECTS: inhalation of dust or fume may cause more severe irritation and possibly lung damage. Repeated exposure may

cause an allergic skin reaction consisting of itching, redness, swelling, and rash or urticaria (hives) in sensitized individuals. Nitroglycerin will produce dilation of blood vessels and drop in blood pressure which may affect the heart. It has also been shown to cause methemoglobinemia (cyanosis). Diphenylamine has been shown to induce kidney

damage. Chronic exposure to high levels of ethyl acetate can cause liver damage.

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

POTENTIAL ENVIRONMENTAL EFFECTS: May be toxic to aquatic organisms and cause long-term adverse effects in the

aquatic environment.

4. FIRST AID MEASURES

EYE CONTACT: Immediately flush out dust particles 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: In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while

removing contaminated clothing and shoes. Wash clothing before reuse and thoroughly clean shoes

before reuse. Get medical attention.

<u>INHALATION:</u> If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give

oxygen. Get medical attention.

<u>INGESTION:</u> Poison. Get medical attention immediately. If swallowed, do NOT induce vomiting unless directed to

do so by medical personnel. Never give anything by mouth to an unconscious person.

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	Not applicable
Combustible	Not applicable	Pyrophoric	No
Flash Point (°C):	Not applicable	Burning Rate of Material:	No data
Lower Explosive Limit:	Not applicable	Autoignition Temp.:	190 - 200°C
Upper Explosive Limit	Not applicable	Flammability Classification: (defined by 29 CFR 1910 1200)	Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS:

EXTINGUISHING MEDIA:

Dust may cause an ignitable and/or an explosive atmosphere.

For localized powder fires, smother with dry sand, dry dolomite, sodium chloride or soda ash. Use fire-extinguishing media appropriate to fight surrounding fire.



SPECIAL FIREFIGHTING PROCEDURES:

In case of fire, use normal fire fighting equipment. Response to this material requires the use of a self-contained breathing apparatus (SCBA). Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves (neoprene, chlorinated polyethylene, butyl rubber), hard hat and impervious clothing, i.e., chemically impermeable suit. Wash all clothing prior to reuse.

6. ACCIDENTAL RELEASE MEASURES

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

SPILLS OF THIS MATERIAL MAY REPRESENT AN EXPLOSION HAZARD and should be handled carefully. This product may explode if subjected to heat, shock, friction, static discharge, or impact. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel. A spill of this material may require emergency response team capabilities; call 1-888-289-1911 for technical assistance.

Wet all spill materials prior to initiating clean up procedure. Use non-sparking or plastic equipment to clean up spill. Wear non-flammable or flame retardant clothing at all times. Material may best be destroyed if burned in an open flame burn if permissible by all regulatory functions. Spread material in thin layers and ignite from a remote location using a slow burning train.

Water Release: This material is heavier than water. Create an overflow dam with filtration capabilities to retain material. Divert water flow or stop if possible. Gather wet material using non-sparking or plastic utensils. Keep material damp until ready for disposal.

7. HANDLING AND STORAGE

HANDLING: Avoid dispersion of dust in air. Do not expose to direct light. Dot not subject to

mechanical shock.

Store in a cool, dry, well ventilated place away from all sources of ignition. Do

not store at temperatures above 38°C (100°F).

Shelf Life Limitations: Indefinite if kept under 100°F.

Incompatible Materials for Packaging: Must be stored in original shipping container for explosion venting purposes. No

incompatible packaging materials known.

Incompatible Materials for Storage or Transport: Oxidizers, acids or alkalis.

OTHER PRECAUTIONS: Do not shake clothing, rags or other items to remove dust. Dust should be

removed by washing or HEPA vacuuming.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

CAS#	CHEMICAL NAME	ACGIH TLV	OSHA PEL	INTERNATIONAL OELS
9004-70-0	Nitrocellulose	None established	None established	None established
55-63-0	Nitroglycerin	0.05 ppm (0.46 mg/m ³) Skin	Ceiling – 0.2 ppm (2 mg/m³) Skin	Denmark: 0.02 ppm (0.2 mg/m³) Norway, Sweden: 0.03 ppm (0.3 mg/m³) Austria, Belgium, Germany, The Netherlands, Poland, Switzerland: 0.05 ppm (0.47 mg/m³), skin Finland, France: 0.1 ppm (0.9 mg/m³), skin U.K.: 0.2 ppm (2 mg/m³), skin
84-74-2	Dibutyl phthalate	5 mg/m ³	5 mg/m ³	Belgium, Denmark, France, Netherlands, Switzerland, U.K.: 5 mg/m ³ Sweden: 3 mg/m ³
7757-79-1	Potassium nitrate	None established	None established	None established
Proprietary	Polyester adipate	None established	None established	None established
85-98-3	Ethyl centralite (diethyl- diphenylurea)	None established	None established	None established
8050-09-7	Rosin	Sensitizer – reduce to as low as possible	None established	None established
141-78-6	Ethyl acetate	400 ppm (1400 mg/m ³)	400 ppm (1400 mg/m ³)	Austria, Belgium, France, Germany, Switzerland, Turkey, U.K.: 400 ppm Denmark, Norway, Sweden: 150 ppm Finland: 300 ppm
122-39-4	Diphenylamine	10 mg/m ³	10 mg/m ³	Austria, Belgium, Netherlands, Switzerland, U.K.:



		1	I	1.40 mg/m ³
				10 mg/m ³
				Denmark, Norway: 5 mg/m³
86-30-6	N-nitrosodiphenyl	None established	None established	None established
	amine			
7778-80-5	Potassium sulfate	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.

Wear impervious (cut-resistant) gloves and other protective clothing (aprons, coveralls) SKIN PROTECTION:

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 not normally needed. If dusting occurs or fumes are generated RESPIRATORY PROTECTION:

above the PEL/TLV, use a NIOSH-approved respirator equipped with organic vapor

cartridge and High Efficiency Particulate (HEPA) dust pre-filter. Do not eat, drink, or smoke while using this product in dust form. GENERAL HYGIENE CONSIDERATIONS:

PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	VALUE	PROPERTY	VALUE
Appearance:	Granular solid	Vapor Density (air = 1):	Not applicable
Odor:	None	Boiling Point (°F):	Not applicable
Molecular Weight:	Not applicable - Mixture	Melting point:	No data
Physical State:	Solid	Specific gravity (g/cc):	1.2 – 1.6
pH:	Not applicable	Bulk Density	0.5 - 1 (g/cc)
Vapor Pressure (mm Hg):	< 1 mm Hg	Viscosity (cps):	Not applicable
Vapor Density	Not applicable	Decomposition Temperature:	Decomposition becomes
			measurable above 50°C
			(122°F)
Solubility in Water (20 ℃):	Negligible	Evaporation Rate:	Negligible
Volatiles, Percent by volume:	< 2	Octanol/water partition coefficient:	Unknown

STABILITY AND REACTIVITY 10.

STABILITY: CAN IGNITE DUE TO IMPACT OR STATIC DISCHARGE.

CONDITIONS TO AVOID: Avoid direct sunlight and open flame

MATERIALS TO AVOID: HAZARDOUS DECOMPOSITION PRODUCTS: Acetylene, chlorine

Carbon monoxide, carbon dioxide, oxides of nitrogen, toxic fumes from

diphenylamine composition

HAZARDOUS POLYMERIZATION: Will not occur.

TOXICOLOGICAL INFORMATION

POTENTIAL EXPOSURE ROUTES: Ingestion, inhalation, dermal exposure, and eye contact

ACUTE ANIMAL TOXICITY DATA:

For Produc	For Product: For Components											
		Nitrogly- cerin	Dibutyl phthal- ate	Poly- ester adipate	Diethyl diphenyl urea	Rosin	Ethyl acetate	Diphenyl amine	N- nitroso- diphenyl amine	Potas- sium nitrate	Potas- sium sulfate	Nitrocell -ulose
Oral LD ₅₀	Believed to be toxic	0.1105 g/kg (rat)	8 g/kg (rat)	No data	2.5 g/kg (rat)	No data	5.62 g/kg (rat)	1.12 g/kg (rat)	1.825 g/kg (rat)	3.75 g/kg (rat)	6.6 g/kg (rat)	> 5 g/kg (rat)
Dermal LD ₅₀	Believed to be toxic	> 280 mg/kg (rabbit)	> 20 ml/kg (rabbit)	No data	No data	No data	> 20 ml/kg (rabbit)	No data	> 7.94 gg/kg (rabbit)	No data	3 g/kg (guinea pig, subcuta- neous)	No data
Inhalation LC ₅₀	Believed to be toxic	No data	4250 mg/m ³ (rat)	No data	No data	No data	200 mg/m ³	No data	No data	No data	No data	No data



For Product:						Fo	r Compone	ents ents				
		Nitrogly- cerin	Dibutyl phthal- ate	Poly- ester adipate	Diethyl diphenyl urea	Rosin	Ethyl acetate	Diphenyl amine	N- nitroso- diphenyl amine	Potas- sium nitrate	Potas- sium sulfate	Nitrocell -ulose
Irritation/ Sensitiza -tion	Eye and respiratory irritant, sensitizer	Mild eye and skin irritant	No data	No data	No data	Skin sensiti- zer	No data	No data	Corrosive to the eye	No data	No data	No data

SUBCHRONIC/ CHRONIC TOXICITY: Diphenylamine has been shown to induce kidney damage in laboratory animals. When

fed to dogs for a period of 2 years, the rate of growth was depressed and anemia and

liver damage developed.

N-nitroso-diphenylamine caused an increase in bladder and kidney tumors during chronic CARCINOGENICITY:

administration to laboratory animals. EPA classifies n-nitrosodiphenylamine as a probable human carcinogen, B2. IARC classifies it as a Group 3 carcinogen (unclassifiable as to human carcinogenicity). The European Union classifies n-

nitrosodiphenylamine as a Category 3 carcinogen.

This product is not known or reported to be mutagenic. N-nitrosodiphenylamine has MUTAGENICITY:

tested positive in a variety of in vitro and in vivo mutagenicity assays.

REPRODUCTIVE, TERATOGENICITY, This product is not known or reported to cause reproductive or developmental effects.

OR DEVELOPMENTAL EFFECTS: Diphenylamine administered via the diet to pregnant rats caused teratogenic effects in the

offspring.

NEUROLOGICAL EFFECTS: This product is not known or reported to cause neurological effects.

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:

Nitrocellulose: $LC_{50} > 1000$ mg/l (fish, invertebrates, algae) Nitroglycerin: Bluegill, 96 hour LC₅₀ = 1.228 mg/l (static)

MOBILITY: No data PERSISTANCE/DEGRADABILITY: No data **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 non-hazardous wastes. This product may be a candidate for metal reclamation.

14. TRANSPORT INFORMATION

	U.S. DOT	RID/ADR	IMDG	IATA	IMO	Canada TDG
PROPER SHIPPING NAME:	Powder,	Unknown	Same as land	FORBIDDEN	Same as land	Powder,
	Smokeless					Smokeless
HAZARD CLASS:	1.3 C					1.3 C
UN NO.:	UN0161					UN0161
PACKING GROUP:	II					II
LABEL:	EXPLOSIVE					EXPLOSIVE
	1.3C					1.3C
REPORTABLE QUANTITY:	Not applicable					

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SPECIAL COMMENTS			Marine
GI EGII LE GOIVIIVIEI VI G			pollutant;
			forbidden by
			transport on
			passenger
			carrying
			roadways or
			railways

15. REGULATORY INFORMATION

US FEDERAL

TSCA	The components of this	The components of this product are listed on the Toxic Substance Control Act inventory.					
CERCLA:	Ethyl acetate, R.Q.= 50	thyl acetate, R.Q.= 5000 lbs.; Nitroglycerin, R.Q. = 10 lbs; Dibutyl phthalate, R.Q. = 10 lbs.; N-					
	Nitrosodiphenyl amine,	litrosodiphenyl amine, R.Q. = 100 lbs					
SARA 313:	Nitroglycerin, Dibutyl pl	Nitroglycerin, Dibutyl phthalate,					
SARA 313 Hazard Class:	Health:	Health: Acute – Yes, Chronic - Yes Reactivity: Yes Release of Pressure: Yes					
SARA 302 EHS List:	None of the componen	None of the components of this product are listed.					

RQ = Reportable Quantity

STATE RIGHT-TO-KNOW STATUS

Component	*CA Prop. 65	New Jersey	Pennsylvania	Massachusetts	Michigan
Nitrocellulose	Not listed	Х	X	X	Not listed
Nitroglycerin	Not listed	X	X	X	Not listed
Dibutyl phthalate	Not listed	Х	X	X	Х
Polyester adipate	Not listed	Not listed	Not listed	Not listed	Not listed
Ethyl centralite (diethyl-					
diphenylurea)	Not listed	Not listed	Not listed	Not listed	Not listed
Rosin	Not listed	Not listed	Not listed	Not listed	Not listed
Ethyl acetate	Not listed	Not listed	X	X	Not listed
Diphenylamine	Not listed	X	X	X	Not listed
N-nitrosodiphenyl amine	X	Х	X	X	Х
Potassium nitrate	Not listed	Not listed	X	X	Not listed
Potassium sulfate	Not listed	Not listed	Not listed	Not listed	Not listed

^{* &}quot;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 S	3vmbol:E	Exp	losive
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T+ Very Toxic Xi Irritant

N Dangerous to the environment

Risk Phrases: R 3 Extreme risk of explosion by shock, friction, fire or other sources of ignition

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed

R 36/37/38 Irritating to eyes, respiratory system and skin R 43 May cause sensitization by skin contact

R 51/53 Toxic to aquatic organisms; may cause long-term adverse effects in the environment

Safety Phrases: S 1 Keep locked up

S 45 In case of accident or if you feel unwell seek medical advice immediately (show the label

where possible)

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical

advice

S 27/28 After contact with skin, take off immediately all contaminated clothing, and wash

immediately with plenty of soap and water.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection





S 29/56 Do not empty into drains, dispose of this material and its container to hazardous or

special waste collection point.

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: Dibutyl phthalate, Ethyl acetate, Diphenylamine, N-nitrosodiphenyl amine

WHMIS: This product is not subject to WHMIS. It is regulated as a Class 6 Explosive in Canada.

16. OTHER INFORMATION

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

address; 1/1/11 - review; 1/1/12 review; 3/20/12 - Updated Emergency Contact Information; 1/1/13 - review

PREPARED BY: Olin Corporation

<u>NOTICE:</u> 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.