BALL® Powder Propellant

SAFETY DATA SHEET

March 2015

The following smokeless powder
is distributed by Winchester Smokeless Propellant

231®
296®
Super-Target® (WST)
Super-Field® (WSF)
AALite™ (WFL)
Super-Handicap™ (WSH)
760®
748®
Supreme 780™
AutoComp™

6430 Vista Drive * Shawnee, KS 66218 * Phone (913) 362-9455 * Fax (913-362-1307
www.Hodgdon.com * www.IMRpowder.com * www.WWpowder.com

St. Marks Powder
A GENERAL DYNAMICS COMPANY
P.O. Box 222
St. Marks, FL 32355
(850) 925-6111

TRANSPORTATION EMERGENCIES
CALL CHEMTREC 1-800-424-9300

Safety Data Sheet

REVISION NO.: **6**
REVISION DATE: **10/08/2012 (Supersedes 07/11/2011)**

1. PRODUCT IDENTIFICATION

1.1 Product identifer

PRODUCT NAME: BALL POWDER® Propellant
SYNONYMS: Smokeless Propellant
PRODUCT CODES: WC, WAA®, WCR®, WMG®, WMR®, WRF®, WPR®, WPT®, WSX®, SPI, SHP, WCUNI, OBP®, SMP®, M38, M47, M48

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product is intended for use in smokeless propellant applications only

1.3 Details of the supplier of the safety data sheet

PREPARED BY:
St. Marks Powder, Inc.
P.O. Box 222
St. Marks, FL 32355-0222
Telephone Number: (850) 925-6111
E-mail: donn.friedman@gd-ots.com

EU CONTACT INFORMATION:
Santa Barbara Sistemas
P.E. Cristalia - Edif. 7/8
C/Via de los Poblados, 3
28033 Madrid, Spain
Telephone Number: +34915850131
E-mail: Teresa.lacruz@gdels.com

1.4 Emergency telephone number

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC (available 24 hours):
1-800-424-9300 US and Canada
+17035273887 International

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

European Hazard Classifications

Hazard Symbol:	E	Explosive
	F	Flammable
	Xn	Harmful
	Xi	Irritant
	N	Dangerous for the environment
	O	Oxidizing
	T	Toxic
	T+	Very Toxic

Risk Phrases:	R 1	Explosive when dry
	R 3	Extreme risk of explosion by shock, friction, fire or other sources of ignition
	R 8	Contact with combustible material may cause fire
	R 11	Highly flammable

	R 20/21/22	Harmful by inhalation, in contact with skin and if swallowed
	R 22	Harmful if swallowed
	R 23/24/25	Toxic by inhalation, in contact with skin and if swallowed
	R 26/27/28	Very toxic by inhalation, in contact with skin and if swallowed
	R 33	Danger of cumulative effects
	R 36	Irritating to the eyes
	R 36/37	Irritating to eyes and respiratory system
	R 36/38	Irritating to eyes and skin
	R 36/37/38	Irritating to eyes, respiratory system and skin
	R 43	May cause sensitization by skin contact
	R 50	Very toxic to aquatic organisms
	R 51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the environment
	R 61	May cause harm to the unborn child
	R 62	Possible risk of impaired fertility
	R 66	Repeated exposure may cause skin dryness or cracking
	R 67	Vapors may cause drowsiness and dizziness
Safety Phrases:	S 1	Keep locked up
	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 29/56	Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point
	S 36/37/39	Wear suitable protective clothing, gloves and eye/face protection
	S 45	In case of accident or if you feel unwell seek medical advice immediately (show the label where possible)

2.2 Label elements

Explosive

2.3 Other hazards

EMERGENCY OVERVIEW: DANGER! FLAMMABLE/EXPLOSIVE. ACCIDENTAL FIRE OR EXPLOSION COULD CAUSE SEVERE INJURY OR DEATH. AVOID IMPACT, FRICTION, HEAT, SPARKS OR FLAME.

3. PRODUCT COMPOSITION / INGREDIENT INFORMATION

3.1 Substances

Product is a mixture.

3.2 Mixtures

COMPONENT	CAS NO.	WEIGHT %	EINECS/ELINCS #	EU CLASSIF. HAZ SYMBOL	EU CLASSIF. R-PHRASE
Nitroglycerin	55-63-0	0-42	200-240-8	E, T+, N	R 3-26/27/28-33-51/53
Dibutyl Phthalate	84-74-2	0-10	201-557-4 (REACH Registration No. 01-2119493042-44-0005)	N, T+	R 50-61-62
Polyester Adipate	Supplier proprietary	0-10			
Ethyl Centralite (diethyldiphenylurea)	85-98-3	0-10	291-645-2	Xi	R 36/37/38
Rosin	8050-09-07	0-5	232-475-7	Xi	R 43
Akardite II	13114-72-2	0-3	236-039-7	None established	None established
Potassium Nitrate	7757-79-1	0-3	231-818-8	O, Xi	R 8-36/38
Potassium Sulfate	7778-80-5	0-3	231-915-5	None established	None established
Ethyl Acetate	141-78-6	0-2	205-500-4	F, Xi	R 11-36-66-67
Diphenylamine	122-39-4	0-1.5	204-539-4	T, N	R 23/24/25-33-51/53
N-Nitrosodiphenylamine	86-30-6	0-1.5	201-663-0	T, N	R 20/21/22-51/53
Tin Dioxide	18282-10-5	0-1.5	242-159-0	Xn, Xi	R 22-36/38
Calcium Carbonate	1317-65-3	0-1	207-439-9	Xi	R 36/37/38
Graphite	7782-42-5	0.02-1	231-955-3	Xi	R 36/37
Nitrocellulose	9004-70-0	Balance to 100	Not listed	E	R 1-3

4. FIRST AID MEASURES

4.1 Description of first aid measures
ROUTES OF ENTRY: Eye contact, skin contact, inhalation and ingestion

EYES: 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.

SKIN: Immediately flush with water for at least 15 minutes. Call a physician. If clothing comes in contact with the product, the clothing should be removed immediately and should be laundered before re-use.

INGESTION: Immediately drink large quantities of water. Induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

INHALATION: If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer

oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough vapor to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be administered immediately.

4.2 Most important symptoms and effects, both acute and delayed
MAY BE HARMFUL IF INHALED OR INGESTED. HARMFUL UPON CONTACT WITH SKIN OR EYES.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Anemia and cardiovascular disease.

POTENTIAL HEALTH EFFECTS:

INHALATION: Dust or vapor is irritating to the nose, mouth, throat and lungs. Dilation of blood vessels with drop in blood pressure and headache, cyanosis, and mental confusion may result from the nitroglycerin in the product. Headache may be severe and can remain for a few hours to several days. It typically starts at the forehead preceded by a sensation of warmth and fullness in the head and may extend to the back of the neck. Nausea, vomiting and abdominal pain may also occur.

INGESTION: Irritating to the gastrointestinal tract. Additional effects would be similar to those described for acute inhalation exposure.

EYES: Irritation may occur with inflammation of the conjunctive. Effects should not result in permanent impairment of vision.

SKIN: Dermal exposure may cause irritation which would subside rapidly upon removal of material without permanent damage. Additional effects would be similar to those described for acute inhalation exposure.

CHRONIC HEALTH EFFECTS: No additional effects are known or have been reported beyond those described for inhalation exposure.

4.3 Indication of any immediate medical attention and special treatment needed
See 4.1

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media
EXTINGUISHING MEDIA: Large volumes of water should be applied as quickly as possible from automatic sprinklers or fire hose.

5.2 Special hazards arising from the substance or mixture
FLAMMABILITY LIMITS IN AIR (% BY VOLUME): LEL - Not Applicable UEL - Not Applicable
FLASH POINT: Not Applicable
AUTOIGNITION TEMPERATURE: 190-200 ℃
EXPLOSIVE: Yes
FLAMMABLE: Yes
PYROPHORIC: No
NFPA RATINGS: Not Established
HMIS RATINGS:

Health:	2	Moderate
Flammability:	4	Severe
Reactivity:	4	Severe

HAZARDOUS PRODUCTS OF COMBUSTION: Combustion products vary depending on fire conditions and other combustibles present in the fire. The predominant products will be carbon dioxide and oxides of nitrogen. Under some conditions, methane, carbon monoxide, irritating aldehydes and carboxylic acids and hydrogen cyanide may be formed.

5.3 Advice for firefighters
SPECIAL FIRE-FIGHTING PROCEDURES: Fires involving smokeless propellant should not be fought unless extinguishing media can be applied from a well protected (e.g. behind a berm or barricade) and distant location from the point of fire.

PERSONAL PROTECTION FOR FIRE-FIGHTING: Self-contained breathing apparatus (SCBA) and protective clothing must be worn. Protective clothing includes, but is not limited to, impervious boots, gloves, hard hat and chemically impermeable suit. Wash all clothing prior to reuse.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Non-flammable or flame retardant clothing should be worn when cleaning up spilled material. Material is sensitive to ignition from sources such as heat, flame, impact, friction or sparks, therefore, non-sparking utensils should be used. Hazards of clean-up can be reduced by wetting down material with water.

6.2 Environmental precautions
AIR RELEASE: Not Applicable
GROUND SPILL: Clean-up spills immediately using non-sparking utensils. Wet down spilled materials prior to initiating clean-up and keep material wet until ready for disposal.
WATER SPILL: The material is heavier than water. Create an overflow dam with filtration capabilities to retain material. Keep material wet until ready for disposal.

6.3 Methods and material for containment and cleaning up
Wet down spilled material to reduce hazards of clean-up and use non-sparking utensils to collect material.

6.4 Reference to other sections
SPILL RESIDUES: Dispose of per guidelines under Section 13. DISPOSAL CONSIDERATIONS

7. HANDLING AND STORAGE

7.1 Precautions for safe Handling
DO NOT SUBJECT TO MECHANICAL SHOCK.

AVOID EXPOSURE TO SUNLIGHT OR ARTIFICIAL ULTRAVIOLET LIGHT.

PRODUCT STABILITY AND SHELF LIFE LIMITATIONS: Smokeless powder contains stabilizers and deteriorates very slowly under proper storage conditions. Old smokeless powder should be checked for deterioration regularly. Deteriorating smokeless powder produces an acidic odor and may produce reddish-brown fumes. Dispose of deteriorating smokeless powder through, for example, controlled open burning in small quantities (product should be submerged in water until burned).

Smokeless powder should not be exposed to excessive heat, as this can accelerate deterioration. Deterioration produces an acidity that accelerates further reaction and has been known, because of heat generated by the reaction, to cause spontaneous combustion.

INCOMPATIBLE MATERIALS FOR PACKAGING: No incompatible packaging materials known. Must be stored in original shipping container.

7.2 Conditions for safe storage, including any incompatibilities
STORAGE CONDITIONS: Store in a cool, dry, well-ventilated place away from all sources of ignition.

RECOMMENDED STORAGE CONDITIONS: 21 ℃ (70 ℉), 50% Relative Humidity (decomposition becomes measurable above 50 ℃ (122 ℉))

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: This product may react with acids, alkalis, oxidizers and amines, and should not be stored with such materials.

For additonal information regarding handling and storage guidelines, see “Properties and Storage of Smokeless Powder”, published by the SPORTING ARMS AND AMMUNITION MANUFACTURES’ INSTITUTE, INC. (SAAMI), 11 Mile High Road, Newtown, CT 06405 (www.saami.org)

7.3 Specific end use
Product is intended for use in smokeless propellant applications only

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters
EXPOSURE LIMITS:

COMPONENT	CAS NO.	OSHA (PEL)	ACGIH (TLV)	INTERNATIONAL OELS
Nitroglycerin	55-63-0	2 mg/m^3 ceiling (skin)	0.05 ppm TWA (skin)	Denmark: 0.02 ppm (0.2 mg/m^3) Norway, Sweden: 0.03 ppm (0.3 mg/m^3) Austria, Belgium, Germany, The Netherlands, Poland, Switzerland: 0.05 ppm (0.47 mg/m^3) (skin) Finland, France: 0.1 ppm (0.9 mg/m^3) (skin) U.K.: 0.2 ppm (2 mg/m^3) (skin)
Dibutyl Phthalate	84-74-2	5 mg/m^3 TWA	5 mg/m^3 TWA	Sweden: 3 mg/m^3 Belgium, Denmark, France, Netherlands, Switzerland, U.K.: 5 mg/m^3
Polyester Adipate	Supplier proprietary	None established	None established	None established
Ethyl Centralite (diethyldiphenylurea)	85-98-3	None established	None established	None established
Rosin	8050-09-07	None established	None established	None established
Akardite II	13114-72-2	None established	None established	None established
Potassium Nitrate	7757-79-1	None established	None established	None established
Potassium Sulfate	7778-80-5	None established	None established	None established
Ethyl Acetate	141-78-6	400 ppm TWA	400 ppm TWA	Denmark, Norway, Sweden: 150 ppm Finland: 300 ppm Austria, Belgium, France, Germany, Switzerland, Turkey, U.K.: 400 ppm
Diphenylamine	122-39-4	None established	None established	Denmark, Norway: 5 mg/m^{3}Austria, Belgium, Netherlands, Switzerland, U.K.: 10 mg/m^3
N-Nitrosodiphenylamine	86-30-6	None established	None established	None established

COMPONENT	CAS NO.	OSHA (PEL)	ACGIH (TLV)	INTERNATIONAL OELS
Tin Dioxide	18282-10-5	2 mg/m^3 TWA	2 mg/m^3 TWA	None established
Calcium Carbonate	1317-65-3	15 mg/m^3 TWA	10 mg/m^3 TWA	None established
Graphite	7782-42-5	5 mg/m^3 TWA	2 mg/m^3 TWA	Germany: 1.5 mg/m^3 Europe, Netherlands, Spain: 2 mg/m^3 U.K.: 4 mg/m^3 Sweden: 5 mg/m^3
Nitrocellulose	9004-70-0	5 mg/m^3 TWA	None established	None established

8.2 Exposure controls
PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

RESPIRATORY PROTECTION: Respiratory protection not normally needed. If significant dusting occurs, a NIOSH approved respirator with organic vapor cartridge and particulate filter should be worn.

VENTILATION: Local exhaust ventilation is recommended if significant dusting occurs. Otherwise, use general exhaust ventilation.

SKIN PROTECTIVE EQUIPMENT: Impermeable gloves

OTHER: Safety glasses with side shields, flame retardant outerwear (e.g. coveralls or lab coat)

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

APPEARANCE:	Granular solid
ODOR:	None
ODOR THRESHOLD:	Not Applicable
pH at 25 ℃:	Not Applicable
MELTING POINT:	Not Applicable
FREEZING POINT:	Not Applicable
BOILING POINT:	Not Applicable
FLASH POINT:	Not Applicable
EVAPORATION RATE:	Negligible
VOLATILES, PERCENT BY VOLUME:	< 2
FLAMMABILITY:	Solid product is flammable - avoid ignition sources
UPPER/LOWER EXPLOSIVE LIMITS:	Not Applicable
VAPOR PRESSURE at 25 ℃:	< 1 mm Hg
VAPOR DENSITY:	Not Applicable
BULK DENSITY:	0.5-1 (g/cc)
SPECIFIC GRAVITY:	1.2-1.6
SOLUBILITY IN WATER:	Negligible
COEFFICIENT OIL/WATER DISTR.:	No Data Available
AUTOIGNITION TEMPERATURE:	190-200 ℃
DECOMPOSITION TEMPERATURE:	Decomposition becomes measurable above 50 ℃ (122 ℉)
VISCOSITY:	Not Applicable
EXPLOSIVE PROPERTIES:	Can explode if ignited and confined

OXIDIZING PROPERTIES: Not Applicable
MOLECULAR WEIGHT: Not Applicable - Mixture

9.2 Other information
None

10. STABILITY AND REACTIVITY

10.1 Reactivity
TEMPERATURES ABOVE 50 ℃ (122 ℉): Decomposition be comes measurable
MECHANICAL SHOCK OR IMPACT: Yes, can ignite due to impact
ELECTRICAL (STATIC) DISCHARGE: Yes, can ignite due to static discharge (minimum ignition energy 200 mJ)

10.2 Chemical stability
SUMMARY OF REACTIVITY:
OXIDIZER: No
PYROPHORIC: No
ORGANIC PEROXIDE: No
WATER REACTIVE: No
OTHER: EXPLOSIVE

10.3 Possibility of hazardous reactions
HAZARDOUS POLYMERIZATION: Will not occur

10.4 Conditions to avoid
Direct sunlight and open flame

10.5 Incompatible materials
Strong acids, alkalis, oxidizers, amines

10.6 Hazardous decomposition products
Carbon monoxide, carbon dioxide, oxides of nitrogen

11. TOXICOLOGOCAL INFORMATION

11.1 Information on toxicological effects
Toxilogical studies of the complete BALL POWDER® product mixture have not been conducted.

INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:
None known or reported.

ANIMAL TOXICOLOGY
ACUTE TOXICITY:
INHALATION LC 50: No available data
DERMAL LD 50: No available data
ORAL LD 50: Approximately 250 mg/kg (rat) based on acute oral toxicity of nitroglycerin
IRRITATION: Irritant to skin or eyes

ACUTE TARGET ORGAN TOXICITY:
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).

CHRONIC TARGET ORGAN TOXICITY:
Diphenylamine has been shown to induce kidney damage. The low concentration of this material in, and the nature of the product, would preclude development of such an effect.
REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

There are no known or reported effects on reproductive function or fetal development.

CARCINOGENICITY:
This product contains N-Nitrosodiphenylamine, which is reported as a possible human carcinogen by IARC.

MUTAGENICITY:
This product or any of its ingredients are not known or reported to be mutagenic.

12. ECOLOGOCAL INFORMATION

12.1 Toxicity
AQUATIC TOXICITY: Components of this product (Dibutyl Phlalate, Diphenylamine, Nitroglycerin) are known to be toxic to aquatic organisms.

12.2 Persistence and degradability
No data available on product mixture

12.3 Bioaccumulative potential
No data available on product mixture

12.4 Mobility in soil
No data available on product mixture

12.5 Results of PBT and vPvB assessment
No data available on product mixture

12.6 Other adverse effects
No data available on product mixture

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
If this material becomes a waste, it may be treated by controlled burning in small quantities, such as in an open burn unit (if permissible by relevant regulatory agencies). Material should be spread in thin layers and ignited from a safe distance.

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 LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NON-HAZARDOUS WASTES.

14. TRANSPORT INFORMATION

14.1 UN number
UN0161

14.2 UN proper shipping name
Powder, smokeless

14.3 Transport hazard classes
1.3C

14.4 Packing group
PG II

14.5 Environmental hazards
No data available on product mixture

14.6 Special precautions for user
Hazardous material. Passenger aircraft/rail transport forbidden. Cargo aircraft transport forbidden. Bulk packaging/transport not permitted.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture
OSHA REGULATORY STATUS: This product may be considered to be a hazardous chemical under the OSHA Hazard Communication Standard, 29 CFR 1910.1200. Applicable OSHA hazard classifications: explosive, toxic, blood toxin, skin and eye irritant.

REPORTABLE QUANTITIES FOR COMPONENTS OF PRODUCT MIXTURE (per 40 CFR 302.4): Nitroglycerin (10 lbs.); Dibutyl Phthalate (10 lbs.); N-Nitrosodiphenylamine (100 lbs.); Ethyl Acetate (5000 lbs.)

EPA HAZARDOUS WASTE STATUS:
If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have EPA hazardous waste number D003.

If this product becomes a waste, it will be a hazardous waste which is subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

TOXIC SUBSTANCES CONTROL ACT:
Components of this product are listed on the Toxic Substance Control Act inventory.

SUPERFUND AMENDMENT AND REAUTHORIZATION ACT TITLE III:
HAZARD CATEGORIES, PER 40 CFR 370.2:
HEALTH: Immediate (Acute)
PHYSICAL: Fire Hazard; Sudden Release of Pressure

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355: Not Applicable - product contains no Appendix A Extremely Hazardous Substances

SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:
This mixture or tradename product contains a toxic chemical or chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372. Specific chemicals: Dibutyl Phthalate, Nitroglycerin, N-Nitrosodiphenylamine, Diphenylamine

OTHER: The supplied powder does not contain substances that are listed in the Annexes of Regulation EC No: 689/2008 (Rotterdam Convention) for the use specified in this safety data sheet.

15.2 Chemical safety assessment
No data available on product mixture

16. OTHER INFORMATION

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET 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. THIS INFORMATION IS BELIEVED TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT NO WARRANTY IS IMPLIED. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT ST. MARKS POWDER, INC. AT THE PHONE NUMBER LISTED IN SECTION 1.3 TO CONFIRM THAT THIS INFORMATION IS CURRENT.