HODGDON®
THE BRAND THAT'S TRUE

Extruded Rifle Powders

MATERIAL SAFETY DATA SHEET

January 2011

The following smokeless powders are
distributed by Hodgdon Powder Company.

H4227®
H4895®
H4198®
Varget®
H4350®
H50BMG®
H4831®
H4831SC®
H1000®
Retumbo®
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6430 Vista Drive * Shawnee, KS 66218 * Phone (913) 362-9455 * Fax (913-362-1307
www.Hodgdon.com * www.IMRpowder.com * www.WWpowder.com

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PROPER SHIPPING NAME
POWDER, SMOKELESS

PRODUCT USE
Propellant for use in centrefire small arms ammunition.

SUPPLIER

Company: Thales, Australia, Mulwala
Address:
Private Bag 1
Mulwala
NSW, 2647
AUS

Company: Thales, Australia, Mulwala Ltd
Address:
Bayly Street
Mulwala
NSW, 2647
AUS
Telephone: +61 2 5742 2200
Emergency Tel: +61 2 5742 2200
Fax: +61 2 5744 1873

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE
HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

POISONS SCHEDULE
None

RISK

Risk Codes	Risk Phrases
R01	» Explosive when dry.
R03	» Extreme risk of explosion by shock fire friction or other sources of ignition.
R05	» Heating may cause an explosion.
R20/21/22	» Harmful by inhalation in contact with skin and if swallowed.
R33	» Danger of cumulative effects.
R45(2)	» May cause CANCER.
R48/22	» Harmful: danger of serious damage to health by prolonged exposure if swallowed.
R52/53	» Harmful to aquatic organisms may cause long- term adverse effects in the aquatic environment.
R62(3)	» Possible risk of impaired fertility.
R68(3)	» Possible risk of irreversible effects.

SAFETY

Safety Codes	Safety Phrases
S01	» Keep locked up.
S36	» Wear suitable protective clothing.
S38	» In case of insufficient ventilation wear suitable respiratory equipment.
S51	» Use only in well ventilated areas.
S401	» To clean the floor and all objects contaminated by this material use water and detergent.
S35	» This material and its container must be disposed of in a safe way.
S13	» Keep away from food drink and animal feeding stuffs.
S60	» This material and its container must be disposed of as hazardous waste.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
nitrocellulose	9004-70-0	> 90
2, 4- dinitrotoluene	121-14-2	1-10
potassium nitrate	7757-79-1	<1
diphenylamine	122-39-4	0-1

continued...

additives	<10

Section 4 - FIRST AID MEASURES

SWALLOWED
» - For advice, contact a Poisons Information Centre or a doctor at once.
- Urgent hospital treatment is likely to be needed.
- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE
» If this product comes in contact with the eyes:
- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
» If skin contact occurs:
- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED
» - If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

NOTES TO PHYSICIAN
» Symptoms of vasodilation and reflex tachycardia may present following organic nitrate overdose; most organic nitrates are extensively metabolised by hydrolysis to inorganic nitrites. Organic nitrates and nitrites are readily absorbed through the skin, lungs, mucosa and gastro-intestinal tract. Delayed pulmonary oedema may result following exposure to nitrous oxides formed on thermal decomposition of the propellant.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
» DANGER: Deliver media remotely.
- For minor fires: Flooding quantities only.
- For large fires: Do not attempt to extinguish.

FIRE FIGHTING
» WARNING: EXPLOSIVE MATERIALS / ARTICLES PRESENT!
- Evacuate all personnel and move upwind.
- Prevent re-entry.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be explosively reactive, detonate and release much heat.

FIRE/EXPLOSION HAZARD
» WARNING: HIGH EXPLOSION HAZARD!
- Combustible.
- Will burn with rapidly increasing intensity of fire.
- Dry material is extremely sensitive to shock, friction, heat and sparks.
- Avoid metal to metal contact.

FIRE INCOMPATIBILITY
» - Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials.
- Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.

HAZCHEM: None

Personal Protective Equipment
Gas tight chemical resistant suit.
Limit exposure duration to 1 BA set 30 mins.

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Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
» Clean up all spills immediately.
Avoid contact with skin and eyes.
Wear impervious gloves and safety glasses.
Use spark-free tools when handling.
Remove all ignition sources.
Place spilled material in clean, dry, sealable, labelled container.
Flush spill area with water.

MAJOR SPILLS
» Clear area of personnel.
Restrict access to area.
Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains and water course.
- Consider evacuation (or protect in place).
No smoking or naked lights within area.
Shut off all possible sources of ignition and increase ventilation.
Stop leak if safe to do so.
Environmental hazard - contain spillage.
Collect, using a spark-free shovel, and seal in labelled drums for disposal.
Wash spill area with large quantities of water.
Protective clothing and equipment should be washed down after use and laundered separately from non-contaminated materials.
In the case of a transport accident notify the State Police, State
Explosives Inspector and the Manufacturer, Thales Mulwala Facility
Collect recoverable packages and segregate from loose, spilled material

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
» Use good occupational work practice. Observe manufacturer's storing and handling recommendations.
Avoid all personal contact, including inhalation.
Wear protective clothing when risk of exposure occurs.
Avoid smoking, naked lights, heat or ignition sources.
Must not be struck by metal implements.
Avoid shock and friction.
Avoid thermal shock.
Use in a well-ventilated area.
Avoid contact with incompatible materials.
When handling, DO NOT eat, drink or smoke.
Avoid physical damage to containers.
Always wash hands with soap and water after handling. Work clothes should be laundered separately.

SUITABLE CONTAINER
» Explosives Code Packing Instruction P114(b) or 114(b)
General packaging provisions of 4.1.1, 4.1.3 and special provision 4.1.5 are to be met.
For UN 0160, 0161 - If outer packaging is drum then inner packaging is not required.
For UN 0160, 0161 - If outer packaging is 1A2 or 1B2 metal drums then drum construction shall be that risk of explosion, by reason of increase by internal pressure from internal or external causes, is prevented.
For UN 0077, 0132, 0234, 0235, 0236, packagings are to be lead free, otherwise:
Inner Packagings:
Bags: Paper Kraft, Plastics, Textiles - sift proof, Woven Plastic - sift proof
Receptacles: Fibreboard, Metal, Paper, Plastic, Woven Plastic - sift proof
Intermediate Packagings:
Not necessary
Outer Packagings:
Boxes: Natural Wood (4C1), Natural Wood -sift proof (4C2), Plywood (4D), Reconstituted Wood (4F), Fibreboard (4G)
Drums: Steel, Removable Head (1A2), Aluminium, removable head (1B2), Plywood (1D), Fibre (1G), Plastic, removable head (1H2).
Check containers are clearly labelled.
- Packaging as recommended by manufacturer.

STORAGE INCOMPATIBILITY
» Segregate from strong acids strong alkalis and strong oxidisers.
- Avoid contact with other explosives, pyrotechnics, solvents, adhesives, paints, cleaners and unauthorized metals, plastics, packing equipment and materials.
- Avoid contamination with acids, alkalis, reducing agents, amines and phosphorus.

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STORAGE REQUIREMENTS
» - Store in original containers.
- Keep containers securely sealed.
- Store in a cool, dry area protected from environmental extremes.
- Store away from incompatible materials and foodstuff containers.
Store in original containers.
No smoking, naked lights, heat or ignition sources.
Keep dry.
Keep storage area free of debris, waste and combustibles.
Protect containers against physical damage.
- Check regularly for spills and leaks.
Store cases in a well ventilated magazine licensed for IMCO class 1.3C Explosives.
NOTE: If deterioration of the explosive occurs or large quantities of explosive need to be destroyed notify the Manager, Thales Mulwala Facility or State Explosives Department.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA mg/m³
Australia Exposure Standards	nitrocellulose (Inspirable dust (not otherwise classified))	10
Australia Exposure Standards	2, 4- dinitrotoluene (Dinitrotoluene (h))	1.5
Australia Exposure Standards	diphenylamine (Diphenylamine)	10

The following materials had no OELs on our records
• potassium nitrate: CAS:7757- 79- 1

PERSONAL PROTECTION

RESPIRATOR
Particulate

EYE
» - Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET
» Wear protective gloves, eg. PVC.
- Protective footwear.
Manufacture may require:

OTHER
» Overalls.
- Eyewash unit.
Ensure ready access to a burns first aid kit.
- Impervious apron.
Ensure there is ready access to a safety shower.
- Barrier cream.
Manufacture may require:
Non-static clean room clothing

ENGINEERING CONTROLS
» General exhaust is adequate under normal operating conditions. Local exhaust ventilation may be required in specific circumstances.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Dark grey tubules.
Bulk density range 850-950 g/L. Insoluble in water.
WARNING: SEVERE EXPLOSION HAZARD. Detonation may occur from heavy impact or excessive heating. Avoid all contact with other chemicals.

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PHYSICAL PROPERTIES
Solid.
Does not mix with water.

Molecular Weight: Not applicable.
Melting Range (℃): Not available.
Solubility in water (g/L): Immiscible
pH (1% solution): Not applicable.
Volatile Component (%vol): Negligible
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable.
Autoignition Temp (℃): 170
State: Divided solid

Boiling Range (℃): Not available.
Specific Gravity (water=1): Approx. .85- .95
pH (as supplied): Not applicable
Vapour Pressure (kPa): Negligible
Evaporation Rate: Not applicable
Flash Point (℃): Not applicable
Upper Explosive Limit (%): Not applicable.
Decomposition Temp (℃): Explosive.
Viscosity: Not Applicable

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY
» - Product is considered stable under normal handling conditions.
- Stable under normal storage conditions.
- Hazardous polymerization will not occur.
For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS
ACUTE HEALTH EFFECTS
» Harmful by inhalation, in contact with skin and if swallowed.

CHRONIC HEALTH EFFECTS
» May cause CANCER.

» Possible risk of impaired fertility.
» Danger of cumulative effects.
» Possible risk of irreversible effects.
» Harmful: danger of serious damage to health by prolonged exposure if swallowed.

TOXICITY AND IRRITATION
» Not available. Refer to individual constituents.

NITROCELLULOSE:
» No significant acute toxicological data identified in literature search.

2,4-DINITROTOLUENE:
» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY
Oral (rat) LD50: 268 mg/kg
Oral (Mouse) LD50: 790 mg/kg
Subcutaneous (Cat) LD: 25 mg/kg

IRRITATION
Skin (rabbit): 500 mg/24h - Mild

» The material may cause skin irritation after prolonged or repeated exposure and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) and swelling epidermis.
WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

POTASSIUM NITRATE:
» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY
Oral (rat) LD50: 3750 mg/kg
Oral (rabbit) LD50: 1901 mg/kg

IRRITATION
Nil Reported

DIPHENYLAMINE:
» unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY
Oral (Rat) LD50: 1120 mg/kg
Oral (Mouse) LD50: 1230 mg/kg
Oral (Guinea) pig: LD50 300 mg/kg

IRRITATION

» Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound.
Acute toxicity: Diphenylamine and its substituted derivatives all show a slight to moderate order of toxicity following oral administration, with LD50 values ranging from >500 to > 34,000 mg/kg. Overall, the acute dermal LD50 for these materials was greater than the 2000 mg/kg limit dose indicating a very low order of toxicity.<</>.
ADI: 0.02 mg/kg/day
NOEL: 1.5 mg/kg/day

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CARCINOGEN

2, 4- dinitrotoluene	International Agency for Research on Cancer (IARC) Carcinogens	Group	2B
potassium nitrate	International Agency for Research on Cancer (IARC) Carcinogens	Group	2A

SKIN

2, 4- dinitrotoluene	Australia Exposure Standards - Skin	Notes	Sk

Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
This material and its container must be disposed of as hazardous waste.

Section 13 - DISPOSAL CONSIDERATIONS

» - Recycle wherever possible. Special hazards may exist - specialist advice may be required.
- Consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.

Explosives which are surplus, deteriorated or considered unsafe for transport, storage or use shall be destroyed and the statutory authorities shall be notified. Explosive must not be thrown away, buried, discarded or placed with garbage. This material may be disposed of by burning but the operation must be performed under the control of a person competent in the destruction of explosives.

Section 14 - TRANSPORTATION INFORMATION

Labels Required: EXPLOSIVE
HAZCHEM: None (ADG7)

Land Transport UNDG:

Class or division:	1.3C	Subsidiary risk:	None
UN No.:	0161	UN packing group:	None
Shipping Name:POWDER, SMOKELESS†			

Air Transport IATA:

ICAO/IATA Class:	1.3C	ICAO/IATA Subrisk:	None
UN/ID Number:	0161	Packing Group:	None
Special provisions:	None		
Cargo Only			
Packing Instructions:	Forbidden	Maximum Qty/Pack:	Forbidden
Passenger and Cargo			
Packing Instructions:	Forbidden	Maximum Qty/Pack:	Forbidden
Passenger and Cargo			
Limited Quantity			
Packing Instructions:	-	Maximum Qty/Pack:	-
Shipping Name: POWDER, SMOKELESS †			

Maritime Transport IMDG:

IMDG Class:	1.3C	IMDG Subrisk:	None
UN Number:	0161	Packing Group:	None
EMS Number:	F- B, S- Y	Special provisions:	None
Limited Quantities:	None		
Shipping Name: POWDER, SMOKELESS			

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE: None

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REGULATIONS
Regulations for ingredients
Mulwala AR 2225 (CAS: None):
No regulations applicable

nitrocellulose (CAS: 9004-70-0) is found on the following regulatory lists;
Australia Dangerous Goods Code (ADG Code) - Goods Too Dangerous To Be Transported
Australia Exposure Standards
Australia High Volume Industrial Chemical List (HVICL)
Australia Inventory of Chemical Substances (AICS)
OECD Representative List of High Production Volume (HPV) Chemicals

2,4-dinitrotoluene (CAS: 121-14-2) is found on the following regulatory lists;
Australia Exposure Standards
Australia Hazardous Substances
Australia Inventory of Chemical Substances (AICS)
IMO IBC Code Chapter 17: Summary of minimum requirements
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Agency for Research on Cancer (IARC) Carcinogens
International Chemical Secretariat (ChemSec) REACH SIN* List (*Substitute It Now!) 1.0
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals
OSPAR List of Substances of Possible Concern

potassium nitrate (CAS: 7757-79-1) is found on the following regulatory lists;
Australia - Australian Capital Territory Environment Protection Regulation Pollutants entering waterways - Agricultural uses (Stock)
Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling
Australia Inventory of Chemical Substances (AICS)
International Agency for Research on Cancer (IARC) Carcinogens
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals

diphenylamine (CAS: 122-39-4) is found on the following regulatory lists;
Australia - Australian Capital Territory Environment Protection Regulation Pollutants entering waterways - Domestic water quality
Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity)
Table 2
Australia Exposure Standards
Australia Hazardous Substances
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix E (Part 2)
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Appendix F (Part 3)
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule 6
GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships
IMO Provisional Categorization of Liquid Substances - List 1: Pure or technically pure products
OECD Representative List of High Production Volume (HPV) Chemicals

Section 16 - OTHER INFORMATION

» Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.
A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

» The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

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This is the end of the MSDS.