Pyrodex® Propellants

# SAFETY DATA SHEET

January 2023

The following Muzzleloading Propellants
are manufactured and distributed by Hodgdon Powder Company.

**Granular**

Pyrodex® RS ***(EX-2017030030)***
Pyrodex® P ***(EX-2017030030)***
Pyrodex® Select ***(EX-2013031304)***

**Pellets**

Pyrodex® BP5050 ***(EX-2013031283)***
Pyrodex® P5050 ***(EX-2016050297)***
Pyrodex® RP4430 ***(EX-2012020788)***

***1.4C EX Approvals in bold parenthesis***

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

# Pyrodex (Granular and Pellets)

## Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Issue date: 06/11/2018 Revision date: 01/06/2023 Version: 2.0

## SECTION 1: Identification

### 1.1. Identification

Product form : Mixture

Product name : Pyrodex (Granular and Pellets)

### 1.2. Recommended use and restrictions on use

No additional information available

### 1.3. Supplier

Hodgdon Powder Company, Inc.
6430 Vista Drive
Shawnee, Kansas 66218
USA
(913) 362-945

### 1.4. Emergency telephone number

Emergency number : (800) 255-3924 (CHEM-TEL)

## SECTION 2: Hazard(s) identification

### 2.1. Classification of the substance or mixture

**GHS-US classification**

| | |
|---|---|
| Expl. 1.3 | H203 |
| Expl. 1.4 | H204 |
| Ox. Sol. 1 | H271 |
| Acute Tox. 4 (Oral) | H302 |
| Eye Irrit. 2A | H319 |

### 2.2. GHS Label elements, including precautionary statements

**GHS US labelling**

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) : H203 - Explosive; fire, blast or projection hazard.
H204 - Fire or projection hazard.
H271 - May cause fire or explosion; strong oxidiser.
H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.

Precautionary statements (GHS US) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 - Keep/Store away from combustible materials.
P221 - Take any precaution to avoid mixing with combustible materials
P230 - Keep wetted with appropriate material.
P240 - Ground/Bond container and receiving equipment.
P250 - Do not subject to friction, grinding, shock.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear eye protection, protective clothing, protective gloves.
P283 - Wear fire/flame resistant/retardant clothing.
P301+P312 - If swallowed: Call a doctor, a POISON CENTER if you feel unwell.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P306+P360 - If on clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P370+P378 - In case of fire: Use water to extinguish.
P370+P380 - In case of fire: Evacuate area.
P371+P380+P375 - In case of major fire and large quantities: Evacuate area. Fight fire

remotely due to the risk of explosion.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P374 - Fight fire with normal precautions from a reasonable distance.
P401 - Store in accordance with local regulations on explosives.
P501 - Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

| Name | Product identifier | %* |
|---|---|---|
| Potassium nitrate | (CAS-No.) 7757-79-1 | 15 – 40 |
| Potassium perchlorate | (C S-No.) 7778-74-7 | 15 – 40 |
| Sodium benzoate | (C S-No.) 532-32-1 | 5 – 10 |
| Sodium nitrate | (CAS-No.) 7631-99-4 | 1 – 5 |

***In accordance with paragraph (i) of the OSHA Hazard Communication Standard (29 CFR §1910.1200), the specific chemical identity or exact weight % has been withheld as a trade secret.**

## SECTION 4: First-aid measures

### 4.1. Description of first aid measures

First-aid measures general : If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.

First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if breathing is affected. If breathing is difficult, supply oxygen.

First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention.

First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.

First-aid measures after ingestion : IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Get medical attention if you feel unwell.

### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Harmful if swallowed. Causes serious eye damage.

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after skin contact : May cause skin irritation.

Symptoms/effects after eye contact : Causes serious eye damage.

Symptoms/effects after ingestion : Harmful if swallowed.

### 4.3. Immediate medical attention and special treatment, if necessary

No additional information available

## SECTION 5: Fire-fighting measures

### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire. Flood fire area with water from a distance. Dry chemical. Carbon dioxide.

Unsuitable extinguishing media : Keep away from heat.

### 5.2. Specific hazards arising from the chemical

Fire hazard : May cause or intensify fire; oxidiser.

Explosion hazard : Explosive. Mass fire hazard.

Reactivity : Explosive; mass explosion hazard.

### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Do not dispose of fire-fighting water in the environment.

Protection during firefighting : Use self-contained breathing apparatus and chemically protective clothing.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

General measures : Evacuate area. Ventilate area. Keep upwind. Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.

#### 6.1.1. For non-emergency personnel

Protective equipment : Wear Protective equipment as described in Section 8.

Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

Protective equipment : Wear suitable protective clothing, gloves and eye or face protection. Approved supplied-air respirator, in case of emergency.

### 6.2 Environmental precautions

Prevent entry to sewers and public waters. Avoid release to the environment. Product is not soluble, but can cause particulate emission if discharged into waterways. Dike all entrances to sewers and drains to avoid introducing material to waterways. Notify authorities if product enters sewers or public waters.

### 6.3. Methods and material for containment and cleaning up

For containment : DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

Methods for cleaning up : Prevent further leakage or spillage if safe to do so. Do not touch or walk through spilled material. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

### 6.4 Reference to other sections

See Sections 8 and 13

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Use personal protective equipment as required. Avoid contact with eyes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools. Use explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Ground and bond all lines and equipment associated with product system. All equipment should be non-sparking and explosion proof.

### 7.2 onditions for safe storage, including any incompatibilities

Storage conditions : Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep only in original container. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Incompatible materials : Acids. Bases. Water. Alcohols. Alkalis. Oxidizing agent. Reducing agents. Nitrites. Amines.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

| **Potassium nitrate (7757-79-1)** | | |
|---|---|---|
| ACGIH | Remark (ACGIH) | OELs not established |
| OSHA | Remark (OSHA) | OELs not established |

| **Sodium nitrate (7631-99-4)** | | |
|---|---|---|
| ACGIH | Remark (ACGIH) | OELs not established |
| OSHA | Remark (OSHA) | OELs not established |

| **Potassium perchlorate (7778-74-7)** | | |
|---|---|---|
| ACGIH | Remark (ACGIH) | OELs not established |
| OSHA | Remark (OSHA) | OELs not established |

| Sodium benzoate (532-32-1) | | |
|---|---|---|
| ACGIH | Remark (ACGIH) | OELs not established |
| OSHA | Remark (OSHA) | OELs not established |

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.

### 8.3. Individual protection measures/Personal protective equipment

**Personal protective equipment symbol(s):**

**Personal protective equipment:**

Gloves. Protective clothing. Wear chemical goggles and face shield in combination.

**Hand protection:**

Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl.

**Eye protection:**

Wear eye protection, including chemical splash goggles and a face shield when possibility exists for eye contact due to spraying liquid or airborne particles.

**Skin and body protection:**

Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

**Respiratory protection:**

Use NIOSH (or other equivalent national standard) -approved dust/particulate respirator. Where vapour, mist, or dust exceed PELs or other applicable OELs, use NIOSH-approved respiratory protective equipment.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Solid |
| Appearance | : | Granular solid. |
| Colour | : | Medium to dark gray |
| Odour | : | Slight sulfur odor |
| Odour threshold | : | No data available |
| pH | : | No data available |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | No data available |
| Flash point | : | No data available |
| Relative evaporation rate (butylacetate=1) | : | No data available |
| Flammability (solid, gas) | : | No data available |
| Vapour pressure | : | No data available |
| Relative vapour density at 20°C | : | No data available |
| Relative density | : | No data available |
| Density | : | 0.75 g/cm³ |
| Solubility | : | Partial in water |
| Partition coefficient n-octanol/water (Log Pow) | : | No data available |

| | |
|---|---|
| Auto-ignition temperature | : 393.3 °C (740 ° F) (granular)<br>260 °C (500 F) ( pellets) |
| Decomposition temperature | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive limits | : No data available |
| Explosive properties | : Sensitive to mechanical impact. |
| Oxidising properties | : No data available |

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Explosive; mass explosion hazard.

### 10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7)

### 10. Possibility of hazardous reactions

None under normal conditions.

### 10.4. Conditions to avoid

Ignition sources. Heat. Sparks. Open flame. Static electricity. Storage near to reactive materials. Do not subject to shock. Contact with other chemicals. Humidity. Direct heating, dirt, chemical contamination, sunlight, UV or ionizing radiation.

### 10.5. Incompatible materials

Acids. Bases. Water. alcohols. Amines. Alkalis. Oxidizing agent. Reducing agents. Nitrites.

### 10.6. Hazardous decomposition products

Carbon oxides (CO, CO2).

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

| | |
|---|---|
| Acute toxicity (oral) | : Harmful if swallowed. |
| Acute toxicity (dermal) | : Not classified |
| Acute toxicity (inhalation) | : Not classified |

| **Potassium nitrate (7757-79-1)** | |
|---|---|
| LD50 oral rat | 3015 mg/kg |

| **Sodium nitrate (7631-99-4)** | |
|---|---|
| LD50 oral rat | 1267 mg/kg |

| **Sodium benzoate (532-32-1)** | |
|---|---|
| LD50 oral rat | 4070 mg/kg |

| | |
|---|---|
| Skin corrosion/irritation | : Not classified |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitisation | : Not classified |
| Germ cell mutagenicity | : Not classified |
| Carcinogenicity | : Not classified |
| Reproductive toxicity | : Not classified |
| STOT-single exposure | : Not classified |
| STOT-repeated exposure | : Not classified |
| Aspiration hazard | : Not classified |
| Viscosity, kinematic | : No data available |
| Symptoms/effects | : Harmful if swallowed. Causes serious eye damage. |
| Symptoms/effects after inhalation | : May cause respiratory irritation. |
| Symptoms/effects after skin contact | : May cause skin irritation. |
| Symptoms/effects after eye contact | : Causes serious eye damage. |

Symptoms/effects after ingestion : Harmful if swallowed.

## SECTION 12: Ecological information

**12.1. Toxicity**

No additional information available

**12.2. Persistence and degradability**

No additional information available

**12.3. Bioaccumulative potential**

No additional information available

**12.4. Mobility in soil**

No additional information available

**12.5. Other adverse effects**

No additional information available

## SECTION 13: Disposal considerations

**13.1. Disposal methods**

Waste treatment methods : Product should not be allowed to enter drains, water courses, or the soil. Dispose in a safe manner in accordance with local/national regulations. DO NOT CLEAN-UP OR DISPOSE OF, EXCEPT UNDER SUPERVISION OF A SPECIALIST.

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Do not allow the product to be released into the environment.

## SECTION 14: Transport information

**Department of Transportation (DOT)**

In accordance with DOT

Transport document description (DOT) : UN0499 Propellant, solid, 1.3, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)

UN0501 Propellant, solid, 1.4, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)

UN-No.(DOT) : 0499 (for 1.3C) ; 0501 (for 1.4C)

Proper Shipping Name (DOT) : Propellant, solid

(Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate)

Class (DOT) : 1.3 - Class 1.3 - Explosives (with predominately a fire hazard) 49 CFR 173.50

1.4 - Class 1.4 Explosives (with no significant blast hazard) 49 CFR 173.50

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 1.3C – Explosive


1.4C - Explosive


DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : Forbidden

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : Forbidden (for 1.3C), 75 kg (for 1.4C)

DOT Vessel Stowage Location : (for 1.3C) 04 - The material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) but the material is prohibited on a passenger vessel.

(for 1.4C) 02 - The material may be stowed "on deck" or "under deck" on a cargo vessel (up to 12 passengers) and "on deck" in closed cargo transport units or "under deck" in closed cargo transport units on a passenger vessel.

DOT Vessel Stowage Other : (for 1.3C) 25 - Shade from radiant heat, 26E - Stowage category "13" and, for on deck stowage, non-metallic lining of closed cargo transport unit is required when not in effectively sealed, sift-proof packages; Stowage category "10" permitted when in effectively sealed, sift-proof packages

(for 1.4C) 25 - Protected from sources of heat

Other information : No supplementary information available.

**Transportation of Dangerous Goods**

| | |
|---|---|
| Transport document description (TDG) | : UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate) |
| UN-No. (TDG) | : UN0499 (for 1.3C) ; UN0501 (for 1.4C) |
| Proper Shipping Name (TDG) | : PROPELLANT, SOLID |
| TDG Primary Hazard Classes | : 1.3C - Class 1.3C - A substance or article which has a fire hazard along with either a minor blast hazard or a minor projection hazard or both, but not a mass explosion hazard<br>1.4C - Class 1.4C - A substance or article which presents no significant hazard; explosion effects are largely confined to the package and no projection or fragments of appreciable size or range are to be expected |
| Packing group (TDG) | : II - Medium Danger |
| Explosive Limit and Limited Quantity Index | : 0 |
| Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index | : Forbidden |
| Passenger Carrying Ship Index | : 10 kg |

**Transport by sea (IMDG)**

| | |
|---|---|
| Transport document description (IMDG) | : UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate) |
| UN-No. (IMDG) | : 0499 (for 1.3C) ; 0501 (for 1.4C) |
| Proper Shipping Name (IMDG) | : PROPELLANT, SOLID |
| Class (IMDG) | : 1 - Explosives |
| Limited quantities (IMDG) | : 0 |

**Air transport (IATA)**

| | |
|---|---|
| Transport document description (IATA) | : UN0499 PROPELLANT, SOLID, 1.3C, II; UN0501 PROPELLANT, SOLID, 1.4C, II (Contains: Potassium perchlorate, Potassium nitrate, and Sodium nitrate) |
| UN-No. (IATA) | : 0499 (for 1.3C) ; 0501 (for 1.4C) |
| Proper Shipping Name (IATA) | : Propellant, solid |
| Class (IATA) | : 1 - Explosives |

## SECTION 15: Regulatory information

### 15.1. US Federal regulations

| Pyrodex (Granular and Pellets) | |
|---|---|
| SARA Section 311/312 Hazard Classes | Physical hazard - Explosive<br>Physical hazard - Oxidizer (liquid, solid or gas)<br>Health hazard - Serious eye damage or eye irritation<br>Health hazard - Acute toxicity (any route of exposure) |

This product or mixture is not known to contain a chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

### 15.2. International regulations

No additional information available

### 15.3. US State regulations

| Silica: Crystalline, quartz (14808-60-7) | | | | | |
|---|---|---|---|---|---|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significant risk level (NSRL) | Maximum allowable dose level (MADL) |
| Yes | No | No | No | | |

| Component | State or local regulations |
|---|---|
| Sulfur (7704-34-9) | U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List |
| Potassium nitrate (7757-79-1) | U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List |
| Sodium nitrate (7631-99-4) | U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List |
| Potassium perchlorate (7778-74-7) | U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Massachusetts - Right To Know List; U.S. - Pennsylvania - RTK (Right to Know) List |
| Distillates, petroleum, hydrotreated light naphthenic (64742-53-6) | U.S. - Massachusetts - Right To Know List |
| Silica: Crystalline, quartz (14808-60-7) | U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List |

## SECTION 16: Other information

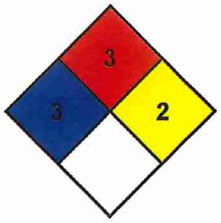
Revision date : 01/06/2023

Other information : Author: JMM.

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 3 - Liquids and solids (including finely divided suspended solids) that can be ignited under almost all ambient temperature conditions.

NFPA reactivity : 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.




HMIS Hazard Rating

Health : 3*

Flammability : 3

Physical : 2

Personal protection : X

Personal protection X - Special handling directions

*This information is based on our current knowledge and is intended to describe the product for the purposes f health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*