

Safety Data Sheet

HMX/Nylon **PERFACORD**[®] Detonating Cord

SDS Revision/Review Date: 08/20/2020

SDS D-2 Rev 6

1. Identification

1.1. Product identifier

Product Identity

HMX/Nylon Perfacord Detonating Cord

Alternate Names

40 HMX LS Detonating Cord, 40 HMX LS Ribbon Detonating Cord, 60 HMX LS Detonating Cord, 80 HMX LS Detonating Cord, 80 HMX LS XHV Detonating Cord, Detotec 40 HMX LS, Detotec 40 HMX LS Ribbon, Detotec 80 HMX LS, Detotec 80 HMX LS XHV, HMX/Nylon Perfacord Detonating Cord

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

Intended use

See Technical Data Sheet.

Application Method

See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Manufacturer/Supplier

Detotec North America, Inc.
401 Snake Meadow Hill Road
Sterling, CT 06377
1-860-564-1012

1.4. 24-hour Emergency telephone number

ChemTel Inc.

1 (800) 255-3924 (North America)
+1 (813) 248-0585 (International)
Call Collect to ensure bilingual operator

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Expl. 1.1;H201

Explosive; mass explosion hazard.

Acute Tox. 3;H301

Toxic if swallowed.

STOT SE 1;H370

Causes damage to organs. Specific Target Organs: (Not Available)

STOT RE 2;H373

May cause damage to organs through prolonged or repeated exposure (if ingested).

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.



Danger

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- H201 Explosive; mass explosion hazard.
- H301 Toxic if swallowed.
- H316 Causes mild skin irritation.
- H370 Causes damage to organs.
- H373 May cause damage to organs through prolonged or repeated exposure (if ingested).

[Prevention]:

- P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.
- P250 Do not subject to grinding/shock/friction.
- P260 Do not breathe mist / vapors / spray.
- P264 Wash thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.

[Response]:

- P301+312 IF SWALLOWED: Call a POISON CENTER or doctor / physician if you feel unwell.
- P302+352 IF ON SKIN: Wash with plenty of soap and water.
- P307+311 IF exposed: Call a POISON CENTER or doctor / physician.
- P314 Get Medical advice / attention if you feel unwell.
- P321 Specific treatment (see information on this label).
- P330 Rinse mouth.
- P363 Wash contaminated clothing before reuse.
- P370+380 In case of fire: Evacuate area.
- P372 Explosion risk in case of fire.
- P373 DO NOT fight fire when fire reaches explosives.

[Storage]:

- P401 Store in accordance with applicable regulations.
- P405 Store locked up.

[Disposal]:

- P501 Dispose of contents / container in accordance with local / national regulations.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine CAS Number: 0002691-41-0	75 - 100	Expl. 1.1;H201 Acute Tox. 3;H301 Acute Tox. 3;H311	[1]
RDX 1,3,5-Trinitroperhydro-1,3,5-triazine CAS Number: 0000121-82-4	1.0 - 10	Expl. 1.1;H201 Acute Tox. 3;H301 STOT SE 1;H370 STOT RE 2;H373	[1][2]

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

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[3] PBT-substance or vPvB-substance.

*The full texts of the phrases are shown in Section 16.

4. First aid measures

4.1. Description of first aid measures

General	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
Inhalation	Not a likely route of exposure. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek prompt medical attention.
Eyes	Not a probable route of exposure.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	Not a probable route of exposure; seek medical advice if ingested.

4.2. Most important symptoms and effects, both acute and delayed

Overview	Detonating cords do not present health hazards in normal handling and use; however, the products are Division 1.1 or 1.4 explosives, and detonation may cause severe physical injury, including death. All explosives are dangerous and must be handled carefully and used following approved safety procedures under the direction of competent, experienced persons in accordance with all applicable federal, state and local laws, regulations, and ordinances. Ingestion of HMX may cause disorders or epileptiform seizures. None of the components of detonating cords are listed as a carcinogen by NTP, IARC, or OSHA. See section 2 for further details.
Skin	Causes mild skin irritation.
Ingestion	Harmful if swallowed.

5. Fire-fighting measures

5.1. Extinguishing media

Recommended extinguishing media; Flood area with water. If no water is available, alcohol resistant foam, CO₂, powder, water spray.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Carbon dioxide, carbon monoxide and nitrogen oxides.

Keep away from heat / sparks / open flames / hot surfaces - No smoking.

Do not subject to grinding/shock/friction.

Do not breathe mist / vapors / spray.

5.3. Advice for fire-fighters

FLASH POINT: Not Applicable.

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FLAMMABLE LIMITS: Not Applicable.

EXTINGUISHING MEDIA: See below.

SPECIAL FIREFIGHTING PROCEDURES: ALL EXPLOSIVES: DO NOT FIGHT EXPLOSIVES FIRES. Try to keep fire from reaching explosives. Isolate Area. Guard against intruders. Withdraw personnel immediately. Allow fire to burn itself out.

Division 1.1 Explosives: Evacuate the area for 5000 feet (1 mile). Consult the 2020 Emergency Response Guidebook, Guide 112 for further details.

Division 1.4 Explosives: Evacuate the area for 1500 feet (1/3 mile). Consult the 2020 Emergency Response Guidebook, Guide 114 for further details.

UNUSUAL FIRE AND EXPLOSION HAZARDS: May explode when subjected to fire or shock. Avoid toxic fumes from fire.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Protect from all ignition sources. Sweep up and dispose of all spilled material immediately. Only competent, experienced persons should be involved in cleanup procedures. Do not permit smoking or open flames near spill site.

WASTE DISPOSAL METHOD: Dispose of under direct supervision of a qualified person according to local, state and federal regulations. This material may become a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, parts 260-271, and must be collected, labeled and disposed of per state and federal hazardous waste regulations.

7. Handling and storage

7.1. Precautions for safe handling

COMPLY WITH "ALWAYS AND NEVER" AS ADOPTED BY THE INSTITUTE OF MAKERS OF EXPLOSIVES. TRANSPORTATION, STORAGE AND USE MUST COMPLY WITH OSHA SAFETY AND HEALTH STANDARDS 29 CFR 1910.109, APPLICABLE MSHA REGULATIONS, THE DOT AND HAZARDOUS MATERIALS REGULATIONS, BATF REQUIREMENTS AND STATE AND LOCAL TRANSPORTATION, STORAGE AND USE REGULATIONS AND ORDINANCES.

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See section 2 for further details. - [Prevention]:

7.2. Conditions for safe storage, including any incompatibilities

Handle containers carefully to prevent damage and spillage.

Incompatible materials: Avoid contact with strong acids or alkalis.

Store in accordance with the requirements of Subpart K, ATF: Explosives Law and Regulations (27 CFR 55.201-55.219). Store in a cool, dry, well-ventilated location.

The maximum recommended temperature for HMX/Nylon detonating cord is 375°F (190°C).

See section 2 for further details. - [Storage]:

7.3. Specific end use(s)

No data available.

8. Exposure controls and personal protection

8.1. Control parameters

Exposure

CAS No.	Ingredient	Source	Value
0000121-82-4	RDX 1,3,5-Trinitroperhydro-1,3,5-triazine	OSHA	No Established Limit
		ACGIH	TWA: 0.5 mg/m ³ Skin
		NIOSH	TWA 1.5 mg/m ³ ST 3 mg/m ³ [skin]
		Supplier	No Established Limit
0002691-41-0	HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

Carcinogen Data

CAS No.	Ingredient	Source	Value
0000121-82-4	RDX 1,3,5-Trinitroperhydro-1,3,5-triazine	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0002691-41-0	HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	OSHA	Select Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

8.2. Exposure controls

Respiratory Not required under normal conditions.

Eyes Not required under normal conditions.

Skin Not required under normal conditions.

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Other Work Practices Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

Appearance	White crystalline / Solid material
Odor	None
Odor threshold	Not Measured
pH	Not Measured
Melting point / freezing point	Not Measured
Initial boiling point and boiling range	Not Applicable
Flash Point	Not Applicable
Danger of explosion:	Risk of explosion by shock, friction, fire or other sources of ignition. Heating may cause an explosion.
Evaporation rate (Ether = 1)	Not Applicable
Flammability (solid, gas)	Not Applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: Not Measured Upper Explosive Limit: Not Measured
Vapor pressure (Pa)	(mm Hg) Negligible
Vapor Density	Not Applicable
Specific Gravity	Not Measured
Solubility in Water	Negligible
Partition coefficient n-octanol/water (Log Kow)	Not Measured
Auto-ignition temperature	Not Measured
Decomposition temperature	Not Measured
Viscosity (cSt)	Not Measured
Appearance and Odor	Flexible cord with an explosive core of HMX protected within a textile braid covered by a seamless nylon jacket.

9.2. Other information

No other relevant information.

10. Stability and reactivity

10.1. Reactivity

Hazardous Polymerization will not occur.

10.2. Chemical stability

Stable under normal conditions. May explode when subjected to fire, shock, or high-energy projectile impact.

10.3. Possibility of hazardous reactions

No data available.

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10.4. Conditions to avoid

No data available.

10.5. Incompatible materials

Avoid contact with strong acids or alkalis.

10.6. Hazardous decomposition products

Carbon dioxide, carbon monoxide and nitrogen oxides.

11. Toxicological information

Acute toxicity

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr	Inhalation Gas LD50, ppm
HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine – (2691-41-0)	No data available	No data available	No data available	No data available	No data available
RDX 1,3,5-Trinitroperhydro-1,3,5-triazine - (121-82-4)	100mg/Kg in rats	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	3	Toxic if swallowed.
Skin corrosion/irritation	3	Causes mild skin irritation.
STOT-repeated exposure	2	May cause damage to organs through prolonged or repeated exposure (if ingested).

12. Ecological information

12.1. Toxicity

Aquatic toxicity: The product contains materials that are harmful to the environment. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
HMX Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine – (2691-41-0)	Not Available	Not Available	Not Available
RDX 1,3,5-Trinitroperhydro-1,3,5-triazine - (121-82-4)	Not Available	Not Available	Not Available

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12.2. Persistence and degradability

There is no data available on the preparation itself.

12.3. Bioaccumulative potential

Not Measured.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects

No data available.

13. Disposal considerations

13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

Proper Shipping Name	Cord, detonating	
Hazard Class	1.1D*	1.4D
UN Number	UN0065	UN0289
DOT Label & Placard	EXPLOSIVE 1.1D	EXPLOSIVE 1.4D

*May be offered for transportation domestically within the United States and transported as Cord, Detonating (UN 0289), Division 1.4 compatibility group D (1.4D) Explosives, provided the explosive content does not exceed 100 grains per linear foot and the gross weight of all packages of detonating cord does not exceed (45 KG) 99 pounds per transport vehicle. See 49 CFR 173.63.

15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA) All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification D1B

US EPA Tier II Hazards

Fire: No

Sudden Release of Pressure: Yes

Reactive: No

Immediate (Acute): Yes

Delayed (Chronic): Yes

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EPCRA 311/312 Chemicals and RQs:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 Extremely Hazardous:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 Toxic Chemicals:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H201 Explosive; mass explosion hazard.

H301 Toxic if swallowed.

H316 Causes mild skin irritation.

H370 Causes damage to organs.

H373 May cause damage to organs through prolonged or repeated exposure (if ingested).

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

The information in this Material Safety Data Sheet is based upon available data and believed to be correct; however as such has been obtained from various sources, including the manufacturer and independent laboratories, it is given without warranty or representation that it is complete, accurate, and can be relied upon. Detotec North America, Inc., and its subsidiaries disclaim any warranties with respect to this product, the safety or suitability thereof, or the information contained herein, including without limitation any implied fitness for a particular purpose and/or other warranty. The information contained herein is provided for reference purposes only and is intended only for persons having relevant technical skills. Any other use of this information is expressly prohibited. Because conditions and manner of use are outside of our control, the user is responsible for determining the conditions of safe use of the product. Buyers and users assume all risk, responsibility and liability whatsoever from any and all injuries (including death), losses, or damage to persons or property arising from the use of this product or information.

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