SAFETY DATA SHEET
Dynoprime T

1. identification of the substance/preparation and of the company/undertaking

Date issued	26.10.2009, Revision 16.11.2010
Product name	Dynoprime T
Article no.	Intern no.: 042-4.eng.01_F
Product group	Pentaerythritol tetranitrate (PETN)-based explosives.
Use of the substance/preparation	Boosters
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2. Hazards identification

Classification	E; R3
Description of hazard	Fire and explosion: Extreme risk of explosion by shock, friction, fire or other sources of ignition. Risk of explosion, an uncontrolled explosion may cause great physical damage. Health: The product is not classified as hazardous to health. At explosion, toxic gases of NO, NO2 are evolved, posing a potential risk when inhaled, and irritating to the respiratory system. Environment: The product is not classified as harmful to the environment.

3. composition/information on ingredients

Component name	Identification	Labelling/classification	Contents
Pentaerythritol tetranitrate	CAS no.: 78-11-5 EC no.: 201-084-3 Index no.: 603-035-00-5	E; R3	~ 85 %
Column headings	CAS no. = Chemical Abstracts Service; EU (Einecs or Elincs number) = European inventory of Existing Commercial Chemical Substances; Ingredient name = Name as specified in the substance list (substances that are not included in the substance list must be translated, if possible). Contents given in; %, %wt/wt, %vol/wt, %vol/vol, mg/m3, ppb, ppm, weight%, vol%		
HH/HF/HE	T+ = Very toxic, T = Toxic, C = Corrosive, Xn = Harmful, Xi = Irritating, E = Explosive, O = Oxidizing, F+ = Extremly flammable, F = Very flammable, N = Environmental hazard		
Component comments	See section 16 for explanation of Risk-phrases listed above. The product is yellow to yellow-brown mass packaged in red plastic.		

4. first-aid measures

General	Fire and explosion: Leave the zone of danger immediately and evacuate

	unnecessary personnel. Bring injured persons out of the zone of danger immediately. Beware of danger of shock in seemingly not-injured persons. The mentioned first aid action is for exposure to the contents in the product.
Inhalation	Fresh air and rest. Be aware that symptoms of lung oedema (shortness of breath) may develop up to 24 hours after exposure. Immediately call an ambulance.
Skin contact	Remove contaminated clothing. Wash the skin immediately with soap and water. Get medical attention if any discomfort continues.
Eye contact	Remove any contact lenses. Immediately rinse with water. Contact physician if discomfort continues.
Ingestion	Rinse mouth thoroughly. Get medical attention.

5. fire-fighting measures

Suitable extinguishing media	Extinguish surrounding fires with suitable extinguisher.
Improper extinguishing media	Do not fight fires involving explosives, risk of explosion! Fire in explosives can not be extinguished with any fire equipment.
Fire and explosion hazards	Extreme risk of explosion by shock, friction, fire or other sources of ignition. Explosion or fire may create toxic vapours such as: Nitrogen oxides. Carbon oxides.
Personal protective equipment	Use fresh air equipment when the product is involved in fire. In case of evacuation, an approved protection mask should be used. See also sect. 8.
Other Information	Evacuate all personell to a predetermined safe location. Notify authorities in accordance with emergency response procedures.

6. accidental release measures

Personal precautions	Use protective equipment as referred to in section 8.
Environmental precautions	Do not allow to enter into sewer, water system or soil.
Methods for cleaning	Sweep up explosive residues with non-sparking tools and remove. Collect in a suitable container and dispose as hazardous waste according to section 13.

7. handling and storage

Handling	Only to be handled by authorized personnel. The explosives must be under supervision and unavailable for persons not concerned. Keep away from sources of ignition - No smoking. Protect against heating. Protect against physical damage and/or friction.
Storage	Storage room must be locked and secured from fire. Store separated from: igniters. Store in tightly closed container. To be stored at temperatures between 0 and 40 °C.
Special risks and properties	Extreme risk of explosion by shock, friction, fire or other sources of ignition. National regulations must be followed with handling and storage.

8. exposure controls/personal protection

Exposure controls

Occupational exposure controls	Do not eat, drink or smoke during work. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Personal protection equipment should be chosen according to the CEN standards and in discussion with the supplier of the personal protective equipment
Respiratory protection	Normally not required.
Hand protection	Use gloves suitable for the work. Upon contact with uncartridged mass use gloves from resistant material, eg.: Nitrile. Penetration time is not known. The recommended material of gloves is recommended after a study of the single

	components in the product.
Eye protection	Normally not necessary. Wear dust resistant safety goggles where there is danger of eye contact.
Skin protection (other than of the hands)	Wear appropriate protective clothing to protect against skin contact.
Other Information	Eye wash facilities should be available when handling this product. The listed protective equipment is a suggestion. A risk assessment (of actual risk) may lead to other requirements.

9. physical and chemical properties

Physical state	Yellow to yellow-brown mass packaged in red plastic.
Odour	Slight odour of mineral oil.
Solubility in water	Insoluble.
Specific gravity	**Value:** 1400 kg/m3
Spontaneous combustability	**Value:** 202-205 °C

10. stability and reactivity

Conditions to avoid	Extreme risk of explosion by shock, friction, fire or othersources of ignition. Avoid temperatures over 70 °C.
Materials to avoid	Strong acids. Bases.
Hazardous decomposition products	Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Nitrous gases (NOx).
Stability	Stable under normal temperature conditions and recommended use.

11. toxicological information

Other information regarding health hazards

General	The composition has low toxicity. Only large quantities may lead to health damages.
Inhalation	Inhalation of dust from pentrit (PETN) can cause headache, nausea, vomiting, and palpitations. Gas or vapour from explosion may irritate respiratory system. Inhalation of nitrous gases may lead to pulmonary edema.
Skin contact	Moderately irritating.
Eye contact	Moderately irritating.
Ingestion	May cause discomfort if swallowed. In severe cases the symptoms can be blue-gray skin, rapid and irregular palpitations and even unconsciousness.

12. ecological information

Toxicological Information:

Aquatic, comments	Acute aquatic, fish LC50/EC50: 160 mg/l (Pentaerythritol tetranitrate)

Other ecological information

Ecotoxicity	The product is not classified as dangerous for the environment.
Mobility	Insoluble in water.
Persistence and degradability	Not readily biodegradable.
Bioaccumulative potential	Not expected to bioaccumulate. Log Pow = 2,13 (Pentaerythritol tetranitrate)

13. disposal considerations

Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes
Specify the appropriate methods of disposal	Dispose of in a regulated landfill site or other method for hazardous or toxic wastes. Residues of explosives must immediately be removed for intermediate

	storage and disposed for safely destruction. Product and package is hazardous waste. Deliver to approved depot. Deposits must be in accordance with local, public or national regulations.

14. transport information

Product name (national)	BOOSTERS
Dangerous goods ADR	**Status:** Yes **UN no.:** 0042 **Class:** 1.1D **Proper shipping name:** BOOSTERS
Dangerous goods RID	**Status:** Yes **UN no.:** 0042 **Class:** 1.1D **Proper shipping name:** BOOSTERS
Dangerous goods IMDG	**Status:** Yes **UN no.:** 0042 **Class:** 1.1D **EmS:** F-B, S-X **Proper shipping name:** BOOSTERS
Dangerous goods ICAO/IATA	**UN no.:** 0042 **Class:** 1.1D **Proper shipping name:** BOOSTERS **Other applicable information.:** Forbidden

15. regulatory information

Hazard symbol

R phrases	R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
S phrases	S35 This material and its container must be disposed of in a safe way. S41 In case of fire and/or explosion do not breathe fumes.
References (laws/regulations)	Dangerous Goods regulations Directive (EC) No 1907/2006 (REACH) Annex II: Safety data sheets. Norwegian regulations regarding occupational exposure Limits Norwegian regulations on classification and labelling of dangerous chemicals. The Hazardous Waste Regulations Norwegian regulation on the handling of explosives. The Safety Data Sheet is based on information provided by the producer.
Comments	The safety data sheet is prepared in accordance with Norwegian regulations. The data sheet is an english translation of the Norwegian edition.

16. other information

List of relevant R phrases (under headings 2 and 3).	R3 Extreme risk of explosion by shock, friction, fire or othersources of ignition.
Recommended restrictions on use	The product can only be handed out to personnel that have valid permits issued by the police.
Sources of key data used to compile the safety datasheet	Suppliers Safety data sheet dated: 29.03.2007 Skanexplo AB

Information which has been added, deleted or revised	New Safety Data Sheet
Supplier's notes	The information contained in this SDS must be made available to all those who handle the product.
Checking quality of information	This SDS is quality controlled by National institute of Technology in Norway, certified according to the Quality Management System requirements specified in NS-EN ISO 9001:2000.
Responsible for safety datasheet	Orica Finland Oy