

Safety Data Sheet

According to: 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA GHS
Trade Name: CAST BOOSTERS

SECTION 1 – IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Name, Address, and Telephone of the Responsible Party

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SDS #: 1108

Date: 08/26/2020

Supersedes: 07/20/2020

1.1 Product Identifier

Trade Name: CAST BOOSTERS

Article Number:

No other identifiers

1108

Other Product Identifiers:

DYNO® CORD SENSITIVE BOOSTERS - CS35, CS45, CS90, CS135

TROJAN® SPARTAN®

TROJAN® SPARTAN® Slider

TROJAN® Stinger

TROJAN® NB

TROJAN® NB UNIVERSAL

TROJAN® Twinplex

TROJAN® SPARTAN® SR

TROJAN® SPARTAN® Cone

TROJAN® Ringprime

TROJAN® SPARTAN® CSU

TROJAN® WB

TROJAN® SHIELD™

1.2 Relevant Identified uses of the Substance or Mixture and uses Advised Against

No further relevant information available.

Application of the Substance / the Mixture

Explosive product.

Commercial blasting applications.

1.3. Emergency Telephone Number

CHEMTREC 1-800-424-9300 (US/Canada)
+01 703-527-3887 (International)

SECTION 2 – HAZARD(S) IDENTIFICATION

2.1 Classification of the Substance or Mixture

Classification According to Regulation (EC) No 1272/2008

Classifications listed also are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).



exploding bomb

Expl. 1.1 H201 Explosive; mass explosion hazard.

Classification According to Directive 67/548/EEC or Directive 1999/45/EC

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E; Explosive

R2: Risk of explosion by shock, friction, fire or other sources of ignition.

Information Concerning Particular Hazards for Human and Environment: The product has to be labelled due to the calculation procedure of the "General Classification guideline for preparations of the EU" in the latest valid version.

Classification System: The classification is according to the latest editions of the EU-lists and extended by company and literature data.

The classification is in accordance with the latest editions of international substances lists and is supplemented by information from technical literature and by information provided by the company.

Additional Information: There are no other hazards not otherwise classified that have been identified.

0 percent of the mixture consists of component(s) of unknown toxicity.

2.2 Label Elements

Labelling According to Regulation (EC) No 1272/2008

The product is additionally classified and labelled according to the Globally Harmonized System within the United States (GHS).

The product is classified and labelled according to the CLP regulation.

Hazard Pictograms



GHS01

Signal Word

: Danger

Hazard-determining components of labelling:

: pentaerythritol tetranitrate (PETN)

: octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)

: perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)

: 2,4,6-trinitrotoluene (TNT)

: aluminium powder (pyrophoric)

Hazard statements

: H201 Explosive; mass explosion hazard.

Precautionary Statements

: P210 - Keep away from heat/sparks/open flames/hot surfaces.
- No smoking.

P250 - Do not subject to grinding/shock/friction.

P280 - Wear protective gloves/protective clothing/eye protection/face protection.

P373 - DO NOT fight fire when fire reaches explosives.

P370+P380 - In case of fire: Evacuate area.

P372 - Explosion risk in case of fire.

P401 - Store in accordance with local/regional/national/international regulations.

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

Hazard Description

WHMIS-Symbols

: Explosive products are not classified under WHMIS.

NFPA Ratings (scale 0 - 4)

: Not available.

HMIS-Ratings (scale 0 - 4)

: Not available.

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HMIS Long Term Health Hazard Substances

None of the ingredients are listed.

2.3 Other Hazards

Results of PBT and vPvB Assessment

PBT : Not applicable.

vPvB : Not applicable.

Explosive Product Notice: PREVENTION OF ACCIDENTS IN THE USE OF EXPLOSIVES - The prevention of accidents in the use of explosives is a result of careful planning and observance of the best known practices. The explosives user must remember that he is dealing with a powerful force and that various devices and methods have been developed to assist him in directing this force. He should realize that this force, if misdirected, may either kill or injure both him and his fellow workers.

WARNING - All explosives are dangerous and must be carefully handled and used following approved safety procedures either by or under the direction of competent, experienced persons in accordance with all applicable federal, state, and local laws, regulations, or ordinances. If you have any questions or doubts as to how to use any explosive product, DO NOT USE IT before consulting with your supervisor, or the manufacturer, if you do not have a supervisor. If your supervisor has any questions or doubts, he should consult the manufacturer before use.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Mixtures

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:	
CAS: 78-11-5 EINECS: 201-084-3 Index number: 603-035-00-5	pentaerythritol tetranitrate (PETN) ⚠ E R3 ----- ⚠ Unst. Expl., H200
CAS: 118-96-7 EINECS: 204-289-6 Index number: 609-008-00-4	2,4,6-trinitrotoluene (TNT) ⚠ T R23/24/25; ⚠ E R2; ⚠ N R51/53 R33 ----- ⚠ Expl. 1.1, H201 ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331 ⚠ STOT RE 2, H373 ⚠ Aquatic Chronic 2, H411
CAS: 7429-90-5	aluminum metal ⚠ F R15 ----- ⚠ Water-react. 1, H260
CAS: 121-82-4 EINECS: 204-500-1	perhydro-1,3,5-trinitro-1,3,5-triazine (RDX) ⚠ T R25; ⚠ E R2 ----- ⚠ Expl. 1.1, H201 ⚠ Acute Tox. 3, H301
CAS: 2691-41-0 EINECS: 220-260-0	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) ⚠ T R24; ⚠ Xn R22; ⚠ E R2 ----- ⚠ Expl. 1.1, H201 ⚠ Acute Tox. 3, H301; Acute Tox. 3, H311

Additional Information: For the wording of the listed risk phrases refer to section 16.

For the listed ingredients, the identity and exact percentages are being withheld as a trade secret.

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SECTION 4 – FIRST AID MEASURES

4.1 Description of First Aid Measures

General Information: No special measures required.

After Inhalation: Supply fresh air; consult doctor in case of complaints.

After Skin Contact: Generally the product does not irritate the skin.

Wash with soap and water.

If skin irritation is experienced, consult a doctor.

After Eye Contact: Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After Swallowing: Do not induce vomiting; call for medical help immediately.

4.2 Most Important Symptoms and Effects, Both Acute and Delayed

Blast injury if mishandled.

Hazards: Danger of blast or crush-type injuries.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

Product may produce physical injury if mishandled. Treatment of these injuries should be based on the blast and compression effects.

SECTION 5 – FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Agents: DO NOT fight fire when fire reaches explosives.

For Safety Reasons Unsuitable Extinguishing Agents: None.

5.2 Special Hazards Arising from the Substance or Mixture

DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions. Can explode or detonate under fire conditions. Burning material may produce toxic vapors. It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

Explosive; mass explosion hazard.

5.3 Advice for Firefighters

Protective Equipment: Wear self-contained respiratory protective device.

Wear fully protective suit.

Additional Information

Eliminate all ignition sources if safe to do so. Flammability Classification: (defined by 29 CFR 1910.1200) Explosive. Can explode under fire conditions. Individual devices will randomly explode. Mass explosion of multiple devices is possible under certain conditions. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2012 Emergency response Guidebook for further information.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Evacuate area.

Wear protective clothing.

Ensure adequate ventilation.

Keep away from ignition sources.

Protect from heat.

Isolate area and prevent access.

6.2 Environmental Precautions

No special measures required.

6.3 Methods and Material for Containment and Cleaning Up

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Dispose unusable material as waste according to item 13.

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6.4 Reference to Other Sections

See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7 – HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Open and handle receptacle with care.
Handle with care. Avoid jolting, friction and impact.
Use only in well ventilated areas.
Do not subject to grinding/shock/friction.

Information About Fire - and Explosion Protection: Keep ignition sources away - Do not smoke. Protect from heat. Prevent impact and friction. Emergency cooling must be available in case of nearby fire.

7.2 Conditions for Safe Storage, Including Any Incompatibilities Storage:

Requirements to be Met by Storerooms and Receptacles: Store in a cool location.
Avoid storage near extreme heat, ignition sources or open flame.

Information About Storage in One Common Storage Facility: Store away from foodstuffs.
Store away from oxidising agents.

Further Information About Storage Conditions: Store under lock and key and with access restricted to technical experts or their assistants only.

Keep away from heat.

7.3 Specific End Use(s): No further relevant information available.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Additional Information About Design of Technical Facilities: No further data; see item 7.

8.1 Control Parameters

Ingredients with Limit Values that Require Monitoring at the Workplace:

118-96-7 2,4,6-trinitrotoluene (TNT)

PEL (USA)	Long-term value: 1,5 mg/m ³ Skin
REL (USA)	Long-term value: 0,5 mg/m ³ Skin
TLV (USA)	Long-term value: 0,1 mg/m ³ Skin; BEI-M
EL (Canada)	Long-term value: 0,1 mg/m ³ Skin
EV (Canada)	Short-term value: 0,2 mg/m ³ , 0,02 ppm Long-term value: 0,1 mg/m ³ , 0,01 ppm Skin

7429-90-5 aluminum metal

PEL (USA)	Long-term value: 15*; 15** mg/m ³ *Total dust; ** Respirable fraction
REL (USA)	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV (USA)	Long-term value: 1* mg/m ³ as Al; *as respirable fraction
EL (Canada)	Long-term value: 1,0 mg/m ³ respirable, as Al

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EV (Canada)	Long-term value: 5 mg/m ³ aluminium-containing (as aluminium)
121-82-4 perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)	
REL (USA)	Short-term value: 3 mg/m ³ Long-term value: 1,5 mg/m ³ Skin
TLV (USA)	Long-term value: 0,5 mg/m ³ Skin
EL (Canada)	Long-term value: 0,5 mg/m ³ Skin
EV (Canada)	Long-term value: 0,5 mg/m ³ Skin

DNELs: No further relevant information available.
PNECs: No further relevant information available.

Ingredients with biological limit values:

118-96-7 2,4,6-trinitrotoluene (TNT)

BEI (USA)	1,5 % of hemoglobin Medium: blood Time: during or end of shift Parameter: Methemoglobin (background, nonspecific, semi-quantitative)
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Additional Information: The lists valid during the making were used as basis.

8.2 Exposure Controls

Personal Protective Equipment:

General Protective and Hygienic Measures: The usual precautionary measures are to be adhered to when handling chemicals.

Keep ignition sources away - Do not smoke.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Respiratory Protection: Not required under normal conditions of use.

Respiratory protection may be required after product use.

Protection of Hands: Wear gloves for the protection against mechanical hazards according to NIOSH or EN 388.

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of Gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Penetration Time of Glove Material: The exact break through time must be found out by the manufacturer of the protective gloves and has to be observed.

Eye Protection:



Safety glasses

Face protection

Body Protection: Impervious protective clothing

Limitation and Supervision of Exposure into the Environment: No further relevant information available.

Risk Management Measures: Organizational measures should be in place for all activities involving this product.

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SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

General Information

Appearance

Form	: Solid material
Colour	: According to product specification
Odour	: Odourless
Odour Threshold	: Not determined.
pH- Value	: Not applicable.
Change in Condition	
Melting point/Melting range	: 80 °C (176 °F) (trinitrotoluene)
Boiling point/Boiling range	: Undetermined.
Flash Point	: Not applicable.
Flammability (solid, gaseous)	: Explosive; mass explosion hazard.
Auto/Self-ignition temperature	: Not determined.
Decomposition temperature	: Not determined.
Self-igniting	: Product is not self-igniting.
Danger of explosion	: Risk of explosion by shock, friction, fire or other sources of ignition.
Explosion limits	
Lower	: Not determined.
Upper	: Not determined.
Vapour pressure	: Not applicable.
Density at 20 °C (68 °F)	: 1,55 - 1,65 g/cm ³ (12,935 - 13,769 lbs/gal)
Relative density	: Not determined.
Vapour density	: Not applicable.
Evaporation rate	: Not applicable.
Solubility in / Miscibility with water	: Variable, dependent upon product composition and packaging.
Partition coefficient (n-octanol/water)	: Not determined.
Viscosity	
Dynamic	: Not applicable.
Kinematic	: Not applicable.
9.2 Other Information	: No further relevant information available.

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity:

10.2 Chemical Stability:

Thermal Decomposition / Conditions to be Avoided: No decomposition if used and stored according to specifications. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

10.3 Possibility of Hazardous Reactions: Danger of explosion. Toxic fumes may be released if heated above the decomposition point.

10.4 Conditions to Avoid: Keep ignition sources away - Do not smoke.

10.5 Incompatible Materials: No further relevant information available.

10.6 Hazardous Decomposition Products: Carbon monoxide and carbon dioxide
Nitrogen oxides Hydrocarbons.

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SECTION 11 – TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

Acute toxicity:

LD/LC50 values relevant for classification: None.

Primary irritant effect:

On the Skin: Not a skin irritant in unused form. Vapors/particles from used product are possibly irritating to skin.

On the Eye: Not an eye irritant in unused form. Vapors/particles from used product are possibly irritating to eyes.

Sensitisation: No sensitising effects known.

Subacute to Chronic Toxicity: No further relevant information available.

Acute Effects (Acute Toxicity, Irritation and Corrosivity): Danger of blast or crush-type injuries.

Repeated Dose Toxicity: No further relevant information available.

SECTION 12 – ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic Toxicity: Toxic for aquatic organisms

12.2 Persistence and Degradability: No further relevant information available.

12.3 Bioaccumulative Potential: No further relevant information available.

12.4 Mobility in Soil: No further relevant information available.

Ecotoxicological effects:

Remark: Toxic for fish

Additional Ecological Information:

General Notes: Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment cannot be excluded.

12.5 Results of PBT and vPvB Assessment PBT: Not applicable.

vPvB: Not applicable.

12.6 Other Adverse Effects: No further relevant information available.

SECTION 13 – DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods:

Recommendation: Must not be disposed together with household garbage. Do not allow product to reach sewage system. Damaged materials pose a danger to anyone in the immediate area; consult experts for disposal of damaged products.

The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes. Residual materials should be treated as hazardous.

Uncleaned Packaging:

Recommendation: Disposal must be made according to official regulations.

SECTION 14 – TRANSPORT INFORMATION

14.1 UN-Number

DOT, ADR, IMDG : UN0042

IATA : FORBIDDEN

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14.2 UN Proper Shipping Name

DOT, IMDG : Boosters, without detonator
ADR : 0042, BOOSTERS, WITHOUT DETONATOR
IATA : FORBIDDEN

14.3 Transport Hazard Class(es)

DOT, ADR, IMDG
Class : 1.1
Label : 1.1D



IATA
Class : FORBIDDEN

14.4 Packing Group

DOT, ADR, IMDG : II
IATA : FORBIDDEN

14.5 Environmental Hazards:

Marine Pollutant: : No
Special Marking (IATA): : Prohibited from Transport in Passenger Aircraft.

14.6 Special Precautions for User:

EMS Number: : F-B,S-X

14.7 Transport in Bulk According to Annex II of MARPOL73/78 and the IBC Code:

Transport/Additional information:

ADR

Limited quantities (LQ) : 0
Excepted quantities (EQ) Code: E0
Not permitted as Excepted Quantity

Tunnel restriction code 1

IMDG

Limited Quantities (LQ) : 0
Excepted Quantities (EQ) : Code: E0
Not permitted as Excepted Quantity

IATA : FORBIDDEN.

UN "Model Regulation" : UN0042, BOOSTERS, WITHOUT DETONATOR, 1.1D, II

SECTION 15 – REGULATORY INFORMATION

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture United States (USA)

SARA
Section 355 (Extremely Hazardous Substances)
None of the ingredients are listed.
Section 313 (Specific Toxic Chemical Listings)
7429-90-5 aluminum metal
TSCA (Toxic Substances Control Act)
All ingredients are listed.
Proposition 65 (California)
Chemicals known to cause cancer
118-96-7 2,4,6-trinitrotoluene (TNT)
Chemicals known to cause reproductive toxicity for females
None of the ingredients are listed.
Chemicals known to cause reproductive toxicity for males

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None of the ingredients are listed.		
Chemicals known to cause developmental toxicity		
None of the ingredients are listed.		
Carcinogenic Categories		
EPA (Environmental Protection Agency)		
118-96-7	2,4,6-trinitrotoluene (TNT)	C
121-82-4	perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)	C
2691-41-0	octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	D
IARC (International Agency for Research on Cancer)		
118-96-7	2,4,6-trinitrotoluene (TNT)	3
TLV (Threshold Limit Value established by ACGIH)		
7429-90-5	aluminum metal	A4
121-82-4	perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)	A4
NIOSH-Ca (National Institute for Occupational Safety and Health)		
None of the ingredients are listed.		
Canada		
Canadian Domestic Substances List (DSL)		
All ingredients are listed.		
Canadian Ingredient Disclosure list (limit 0.1%)		
None of the ingredients are listed.		
Canadian Ingredient Disclosure list (limit 1%)		
118-96-7 2,4,6-trinitrotoluene (TNT) 7429-90-5 aluminum metal		
Other regulations, limitations and prohibitive regulations		
This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.		
Substances of very high concern (SVHC) according to REACH, Article 57		
None of the ingredients are listed.		
15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.		

SECTION 16 – OTHER INFORMATION

Revision Date : 22/05/2015

Other Information :

Relevant Phrases

- H200 Unstable explosives.
- H201 Explosive; mass explosion hazard.
- H260 In contact with water releases flammable gases which may ignite spontaneously.
- H301 Toxic if swallowed.
- H311 Toxic in contact with skin.
- H331 Toxic if inhaled.
- H315 Causes skin irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H411 Toxic to aquatic life with long lasting effects.
- R15 Contact with water liberates extremely flammable gases.
- R2 Risk of explosion by shock, friction, fire or other sources of ignition.
- R22 Harmful if swallowed.

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- R23/24/25 Toxic by inhalation, in contact with skin and if swallowed.
- R24 Toxic in contact with skin.
- R25 Toxic if swallowed.
- R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
- R33 Danger of cumulative effects.
- R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Abbreviations and acronyms:

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- WHMIS: Workplace Hazardous Materials Information System (Canada)
- DNEL: Derived No-Effect Level (REACH)
- PNEC: Predicted No-Effect Concentration (REACH)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- Expl. 1.1: Explosives, Division 1.1
- Unst. Expl.: Explosives, Unstable explosives
- Water-react. 1: Substances and Mixtures which, in contact with water, emit flammable gases, Hazard Category 1
- Acute Tox. 3: Acute toxicity, Hazard Category 3
- STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
- Aquatic Chronic 2: Hazardous to the aquatic environment - Chronic Hazard, Category 2

Sources

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Dyno Nobel SDS