

Safety Data Sheet

according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

Printing date: 01.11.2018

Revision: 01.11.2018

SECTION 1: Identification of the substance/mixture and of the company/ undertaking

- **1.1 Product identifier (SDS# 1178)**
- **Trade name: ELECTRIC SUPER™ (Detonators, Class 1.4B)**
- **Other product identifiers:**
 - ELECTRIC SUPER™ MS
 - ELECTRIC SUPER™ LP
 - ELECTRIC SUPER™ COAL
 - ELECTRIC SUPER™ STARTER
 - ELECTRIC SUPER™ SEISMIC
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**
- **Application of the substance / the mixture:**
 - Explosive product.
 - Commercial blasting applications
- **Uses advised against:** Contact manufacturer
- **1.3 Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
 - Dyno Nobel Inc.
 - 2795 East Cottonwood Parkway, Suite 500
 - Salt Lake City, Utah 84121
 - Phone: 801-364-4800
 - Fax: 801-321-6703
 - E-Mail: dnna.hse@am.dynonobel.com
- **1.4 Emergency telephone number:**
 - CHEMTREC
 - 1-800-424-9300 (US/Canada)
 - +01 703-527-3887 (International)

SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**
 - Classifications listed are applicable to the OSHA GHS Hazard Communication Standard (29CFR1910.1200).
 - Expl. 1.4 H204 Fire or projection hazard.
- **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**



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- **Signal word** Warning
- **Hazard-determining components of labelling:**
 - perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)
 - 2,2',4,4',6,6'-hexanitrostilbene (HNS)
 - lead diazide / lead azide
 - pentaerythritol tetranitrate (PETN)
 - barium chromate
 - orange lead
- **Hazard statements**
 - H204 Fire or projection hazard.
- **Precautionary statements**
 - P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 - P240 Ground/bond container and receiving equipment.
 - P250 Do not subject to grinding/shock/friction.
 - P280 Wear eye protection.
 - P370+P380 In case of fire: Evacuate area.
 - P372 Explosion risk in case of fire.
 - P373 DO NOT fight fire when fire reaches explosives.
 - P401 Store in accordance with local/regional/national/international regulations.
 - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Additional information:**
 - Contains lead. Should not be used on surfaces liable to be chewed or sucked by children.

· **2.3 Other hazards** There are no other hazards not otherwise classified that have been identified.

· **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 they are dealing with a powerful force and that various devices and methods have been developed to assist them in directing this force. They should realize that this force, if misdirected, may either kill or injure both themselves and their 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, they should consult the manufacturer before use.

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SECTION 3: Composition/information on ingredients

· 3.2 Mixtures

· Components:

CAS: 7440-66-6 EINECS: 231-175-3 Index number: 030-001-01-9 Reg.nr.: 01-2119467174-37-XXXX	zinc powder -zinc dust (stabilized) ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	45-55%
CAS: 121-82-4 EINECS: 204-500-1 Reg.nr.: 01-2119990795-17-XXXX	perhydro-1,3,5-trinitro-1,3,5-triazine (RDX) ⚠ Expl. 1.1, H201 ⚠ Acute Tox. 3, H301	0-15%
CAS: 20062-22-0 EINECS: 243-494-5	2,2',4,4',6,6'-hexanitrostilbene (HNS) ⚠ Expl. 1.1, H201 ⚠ Acute Tox. 3, H301	0-15%
CAS: 78-11-5 EINECS: 201-084-3 Index number: 603-035-00-5 Reg.nr.: 01-2119557827-23-XXXX	pentaerythritol tetranitrate (PETN) ⚠ Unst. Expl., H200	0-15%
CAS: 13424-46-9 EINECS: 236-542-1 Index number: 082-003-00-7 Reg.nr.: 01-2119475503-38-XXXX	lead diazide / lead azide ⚠ Unst. Expl., H200 ⚠ Carc. 1B, H350; Repr. 1A, H360Df; STOT RE 2, H373 ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	0-2%
CAS: 1314-41-6 EINECS: 215-235-6 Index number: 082-001-00-6 Reg.nr.: 01-2119517589-27-XXXX	orange lead ⚠ Repr. 1A, H360Df; STOT RE 2, H373 ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410 ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	0-2%
CAS: 7440-42-8 EINECS: 231-151-2 Reg.nr.: 01-2119978866-12-XXXX	boron	0-2%
CAS: 7440-21-3 EINECS: 231-130-8 Reg.nr.: 01-2119480401-47-XXXX	silicon ⚠ Flam. Sol. 2, H228	0-2%
CAS: 10294-40-3 EINECS: 233-660-5 Index number: 056-002-00-7	barium chromate ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332	0-2%

· SVHC

13424-46-9 | lead diazide / lead azide

1314-41-6 | orange lead

· Additional information:

For the listed ingredient(s), the identity and/or exact percentages are being withheld as a trade secret.
For the wording of the listed Hazard Statements refer to section 16.

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SECTION 4: First aid measures

· 4.1 Description of first aid measures

· After inhalation:

Unlikely route of exposure.
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: Firefighting 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.

Product may explode if burned in confined space. Individual cartridges may explode. Mass explosion of many cartridges at once is unlikely.

· 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. Will not mass explode if multiple devices are involved. Burning material may produce toxic and irritating vapors. In unusual cases, shrapnel may be thrown from exploding devices under containment. See 2008 Emergency response Guidebook for further information.

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SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**

- Ensure adequate ventilation

- Wear protective clothing.

- Protect from heat.

- Evacuate area.

- Isolate area and prevent access.

- **6.2 Environmental precautions** Avoid release to the environment.

- **6.3 Methods and material for containment and cleaning up**

- Pick up mechanically.

- Send for recovery or disposal in suitable receptacles.

- **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**

- 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:**

- Protect from heat.

- 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.

- **Further information about storage conditions:**

- Store in cool, dry conditions in well sealed receptacles.

- Keep away from heat.

- **7.3 Specific end use(s)** No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:

121-82-4 perhydro-1,3,5-trinitro-1,3,5-triazine (RDX)

REL (USA) Short-term value: 3 mg/m³
Long-term value: 1.5 mg/m³
Skin

TLV (USA) Long-term value: 0.5 mg/m³
Skin

13424-46-9 lead diazide / lead azide

PEL (USA) Long-term value: 0.05 mg/m³
as Pb; See 29 CFR 1910.1025

REL (USA) Long-term value: 0.05* mg/m³
as Pb;*8-hr TWA; See Pocket Guide App. C

TLV (USA) Long-term value: 0.05 mg/m³
as Pb; BEI

1314-41-6 orange lead

BOELV (EU) Long-term value: 0.15 mg/m³
as Pb

PEL (USA) Long-term value: 0.05 mg/m³
as Pb; See 29 CFR 1910.1025

REL (USA) Long-term value: 0.05* mg/m³
as Pb;*8-hr TWA; See Pocket Guide App. C

TLV (USA) Long-term value: 0.05 mg/m³
as Pb; BEI

7440-21-3 silicon

PEL (USA) Long-term value: 15* 5** mg/m³
*total dust **respirable fraction

REL (USA) Long-term value: 10* 5** mg/m³
*total dust **respirable fraction

TLV (USA) TLV withdrawn

10294-40-3 barium chromate

PEL (USA) Long-term value: 0.005* mg/m³
Ceiling limit: 0.1** mg/m³
*as Cr(VI) **as CrO₃; see 29 CFR 1910.1026

REL (USA) Long-term value: 0.0002 mg/m³
as Cr; See Pocket Guide Apps. A and C

TLV (USA) Long-term value: 0.01 mg/m³
as Cr

· **DNELs:** No further relevant information available.

· **PNECs:** No further relevant information available.

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· Ingredients with biological limit values:

13424-46-9 lead diazide / lead azide

BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead
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1314-41-6 orange lead

BEI (USA)	30 µg/100 ml Medium: blood Time: not critical Parameter: Lead
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10294-40-3 barium chromate

BEI (USA)	25 µg/L Medium: urine Time: end of shift at end of workweek Parameter: Total chromium (fume)
	10 µg/L Medium: urine Time: increase during shift Parameter: Total chromium (fume)

· 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 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.

· Eye protection:



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

· Body protection: Protective work 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

· Appearance

Form:	Solid material
Colour:	According to product specification
· Odour:	Odourless
· Odour threshold:	Not determined.

· pH-value:	Not applicable.
· Melting point/freezing point:	Not determined.
· Initial boiling point and boiling range:	Not determined.

· Flash point:	Not applicable.
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· Flammability (solid, gas):	Fire or projection hazard.
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· Auto/Self-ignition temperature:	Not determined.
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· Decomposition temperature:	Not determined.
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· Explosive properties:	Heating may cause an explosion.
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· Explosion limits

Lower:	Not determined.
Upper:	Not determined.

· Vapour pressure:	Not applicable.
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· Density:

Relative density:	Not determined.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.

· Solubility in / Miscibility with water:	Insoluble.
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· Partition coefficient: n-octanol/water:	Not determined.
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· Viscosity

Dynamic:	Not applicable.
Kinematic:	Not applicable.

· 9.2 Other information	No further relevant information available.
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SECTION 10: Stability and reactivity

· 10.1 Reactivity	No further relevant information available.
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· 10.2 Chemical stability

· Thermal decomposition / conditions to be avoided:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

· 10.3 Possibility of hazardous reactions

Fire or projection hazard.

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Toxic fumes may be released if heated above the decomposition point.

- **10.4 Conditions to avoid** Excessive heat.
- **10.5 Incompatible materials** Oxidisers, strong bases, strong acids
- **10.6 Hazardous decomposition products**
Carbon monoxide and carbon dioxide
Hydrocarbons
Leadoxide vapour
Nitrogen oxides
Chlorine compounds
Danger of forming toxic pyrolysis products.
Toxic metal oxide smoke

SECTION 11: Toxicological information

- **11.1 Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values relevant for classification:** None.
- **Primary irritant effect**
- **Skin corrosion/irritation:**
Not a skin irritant in unused form. Vapours/particles from used product are possibly irritating to skin.
- **Serious eye damage/irritation:**
Not an eye irritant in unused form. Vapours/particles from used product are possibly irritating to eyes.
- **Respiratory or skin sensitisation:** Based on available data, the classification criteria are not met.
- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer):**

10294-40-3	barium chromate	1
7758-97-6	lead chromate	1
13424-46-9	lead diazide / lead azide	2A
1314-41-6	orange lead	2A

- **NTP (National Toxicology Program):**

13424-46-9	lead diazide / lead azide	R
1314-41-6	orange lead	R
10294-40-3	barium chromate	K

- **OSHA-Ca (Occupational Safety & Health Administration):**

None of the ingredients are listed.

- **Probable routes of exposure:** Skin contact.
- **Acute effects (acute toxicity, irritation and corrosivity):** Danger of blast or crush-type injuries.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:** Based on available data, the classification criteria are not met.

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- **Aspiration hazard:** Based on available data, the classification criteria are not met.

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** May be accumulated in organism
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary
Due to available data on eliminability/decomposition and bioaccumulation potential prolonged term damage of the environment can not 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, IATA | UN0255 |
| 14.2 UN proper shipping name | |
| · DOT, ADR, IMDG, IATA | DETONATORS, ELECTRIC |

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- **14.3 Transport hazard class(es)**

- **DOT**



- Class 1.4
- Label 1.4B

- **ADR, IMDG, IATA**



- Class 1.4
- Label 1.4B

- **14.4 Packing group** This UN-number is not assigned a packing group.

- **14.5 Environmental hazards:**

- Marine pollutant: No

- **14.6 Special precautions for user**

- EMS Number: F-B,S-X
- Segregation groups Lead and its compounds

- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable.

- **Transport/Additional information:**

- **IATA**



Cargo Aircraft Only.

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):**

All ingredients are listed.

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· **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

· **Proposition 65 (California):**

· **Chemicals known to cause cancer:**

13424-46-9 lead diazide / lead azide

10294-40-3 barium chromate

7758-97-6 lead chromate

1314-41-6 orange lead

· **Chemicals known to cause reproductive toxicity for females:**

10294-40-3 barium chromate

7758-97-6 lead chromate

· **Chemicals known to cause reproductive toxicity for males:**

10294-40-3 barium chromate

7758-97-6 lead chromate

· **Chemicals known to cause developmental toxicity:**

13424-46-9 lead diazide / lead azide

10294-40-3 barium chromate

7758-97-6 lead chromate

· **Carcinogenic Categories**

· **EPA (Environmental Protection Agency)**

13424-46-9 lead diazide / lead azide

B2

10294-40-3 barium chromate

A(inh), D(oral), K/L(inh), CBD(oral)

7758-97-6 lead chromate

K

1314-41-6 orange lead

B2

7440-42-8 boron

I (oral)

· **IARC (International Agency for Research on Cancer)**

13424-46-9 lead diazide / lead azide

2A

10294-40-3 barium chromate

1

7758-97-6 lead chromate

1

1314-41-6 orange lead

2A

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

10294-40-3 barium chromate

7758-97-6 lead chromate

· **Canadian Domestic Substances List (DSL)**

All ingredients listed on DSL or NDSL.

· **Other regulations, limitations and prohibitive regulations**

· **Substances of very high concern (SVHC) according to REACH, Article 57**

13424-46-9 lead diazide / lead azide

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7758-97-6 | lead chromate

1314-41-6 | orange lead

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Disclaimer

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· Relevant phrases

- H200 Unstable explosives.
- H201 Explosive; mass explosion hazard.
- H228 Flammable solid.
- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H332 Harmful if inhaled.
- H350 May cause cancer.
- H360Df May damage the unborn child. Suspected of damaging fertility.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

· Abbreviations and acronyms:

- ADR: 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
- 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)
- DNEL: Derived No-Effect Level (REACH)
- PNEC: Predicted No-Effect Concentration (REACH)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bio-accumulable, Toxique
- SVHC: Substances of Very High Concern
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: l'Institut national de recherche sur la sécurité et la santé au travail / National Institute for Occupational Safety (États-Unis)
- OSHA: Occupational Safety & Health Administration
- Expl. 1.1: Explosives – Division 1.1
- Expl. 1.4: Explosives – Division 1.4

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Safety Data Sheet
according to 1907/2006/EC (REACH), 1272/2008/EC (CLP), and OSHA
GHS

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Trade name: ELECTRIC SUPER™ (Detonators, Class 1.4B)

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Unst. Expl.: Explosives – Unstable explosive
Flam. Sol. 2: Flammable solids – Category 2
Acute Tox. 3: Acute toxicity – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Carc. 1B: Carcinogenicity – Category 1B
Repr. 1A: Reproductive toxicity – Category 1A
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Sources

Website, European Chemicals Agency (echa.europa.eu)
Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)
Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)
Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6
Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.
Safety Data Sheets, Individual Manufacturers

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