

Safety Data Sheet

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

Printing date 04.04.2013

Revision: 04.04.2013

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

1.1 Product identifier

· Trade name: **MODEL 6230 CS Smoke Grenade**

· Article number: *MODEL 6230*

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

No further relevant information available.

· Application of the substance / the preparation *Explosive product.*

1.3 Details of the supplier of the Safety Data Sheet

Manufacturer/Supplier:

*Combined Systems, Inc.
388 Kinsman Rd.
Jamestown, PA 16134
Phone: (724) 932-2177*

1.4 Emergency telephone number:

*ChemTel Inc.
(800)255-3924, +1 (813)248-0585*

2 Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

The following Hazard Statements are applicable only to the EU regulations and not the US GHS regulation: H411.



GHS01 exploding bomb

Expl. 1.4 H204 Fire or projection hazard.



GHS09 environment

Aquatic Chronic 2 H411 Toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Acute Tox. 4 H332 Harmful if inhaled.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

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



Xn; Harmful

R20/22: Harmful by inhalation and if swallowed.



E; Explosive

R3: Extreme risk of explosion by shock, friction, fire or other sources of ignition.

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N; Dangerous for the environment

R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

· **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.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**

The following Hazard Statements are applicable only to the EU regulations and not the US GHS regulation: H411.

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

· **Hazard pictograms**



GHS01 GHS07 GHS09

· **Signal word** Warning

· **Hazard-determining components of labelling:**

potassium chlorate

[(2-chlorophenyl)methylene]malononitrile

Magnesium Carbonate

· **Hazard statements**

The following Hazard Statements are applicable only to the EU regulations and not the US GHS regulation: H411.

H204 Fire or projection hazard.

H302+H332 Harmful if swallowed or if inhaled.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**

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

P250 Do not subject to grinding/shock/friction.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P373 DO NOT fight fire when fire reaches explosives.

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P372 Explosion risk in case of fire.

P332+P313 If skin irritation occurs: Get medical advice/attention.

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P302+P352 IF ON SKIN: Wash with plenty of soap and water.

· **Additional information:**

Can become highly flammable in use.

· **Hazard description:**· **WHMIS-symbols:**

B4 - Flammable solid

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects

F - Dangerously reactive material

· **NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 2

Reactivity = 3

· **HMIS-ratings (scale 0 - 4)**

Health = 2

Fire = 2

Reactivity = 3

· **HMIS Long Term Health Hazard Substances**

None of the ingredients is 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.

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3 Composition/information on ingredients

3.2 Mixtures

· **Description:** Mixture of substances listed below with nonhazardous additions.

· Dangerous components:

CAS: 3811-04-9 EINECS: 223-289-7 Index number: 017-004-00-3	potassium chlorate Xn R20/22; O R9; N R51/53 Ox. Sol. 1, H271 Aquatic Chronic 2, H411 Acute Tox. 4, H302; Acute Tox. 4, H332	25-50%
CAS: 57-50-1 EINECS: 200-334-9	sucrose, pure substance with a Community workplace exposure limit	10-25%
CAS: 7760-50-1	Magnesium Carbonate Xn R22; Xi R36/37/38 Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335	10-25%
CAS: 2698-41-1 EINECS: 220-278-9	[(2-chlorophenyl)methylene]malononitrile T R25 Acute Tox. 3, H301	10-25%
CAS: 7757-79-1 EINECS: 231-818-8	potassium nitrate O R8 Ox. Sol. 2, H272	<10%
CAS: 7440-21-3 EINECS: 231-130-8	silicon substance with a Community workplace exposure limit Flam. Sol. 2, H228	<10%
CAS: 9004-70-0 EC number: 603-037-0	Nitrocellulose, colloided, granular E R1-3 Unst. Expl., H200	<10%
CAS: 7440-44-0 EINECS: 231-153-3	carbon Xi R36/37 Eye Irrit. 2, H319; STOT SE 3, H335	<10%
CAS: 10294-40-3 EINECS: 233-660-5 Index number: 056-002-00-7	barium chromate Xn R20/22 Acute Tox. 4, H302; Acute Tox. 4, H332	<1,0%

· **Additional information:** For the wording of the listed risk phrases refer to section 16.

· **Notable Trace Components (< 0.1% w/w)**

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CAS: 7440-02-0
EINECS: 231-111-4
Index number: 028-002-00-7

nickel
 T R48/23;  Xn R40;  Xi R43
 Carc. Cat. 3
 Carc. 2, H351; STOT RE 1, H372
 Skin Sens. 1, H317

CAS: 592-87-0
EINECS: 209-774-6
Index number: 082-001-00-6

lead dithiocyanate
 T Repr. Cat. 1, 3 R61;  Xn R62-20/22;  N R50/53
 R33
 Repr. 1A, H360Df; STOT RE 2, H373
 Aquatic Acute 1, H400; Aquatic Chronic 1, H410
 Acute Tox. 4, H302; Acute Tox. 4, H332

4 First aid measures

4.1 Description of first aid measures

General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

Remove breathing equipment only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation:

Supply fresh air.

Seek immediate medical advice.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After skin contact:

Immediately wash with water and soap and rinse thoroughly.

Immediately rinse with water.

Do not pull solidified product off the skin.

If skin irritation continues, consult a doctor.

After eye contact:

Protect unharmed eye.

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing:

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; call for medical help immediately.

4.2 Most important symptoms and effects, both acute and delayed

Asthma attacks

Breathing difficulty

Coughing

Allergic reactions

Hazards

Danger of pulmonary oedema.

Danger of disturbed cardiac rhythm.

Danger of convulsion.

Danger of impaired breathing.

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· **4.3 Indication of any immediate medical attention and special treatment needed**

If necessary oxygen respiration treatment.

Later observation for pneumonia and pulmonary oedema.

In cases of irritation to the lungs, initial treatment with cortical steroid inhalants.

Treat skin and mucous membrane with antihistamine and corticoid preparations.

5 Firefighting measures

· **5.1 Extinguishing media**

· **Suitable extinguishing agents:**

CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **For safety reasons unsuitable extinguishing agents:** *None.*

· **5.2 Special hazards arising from the substance or mixture**

During heating or in case of fire poisonous gases are produced.

· **5.3 Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Evacuate area and fight fire from from the upwind side.

Cool endangered receptacles with water spray.

In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

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.

6 Accidental release measures

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

Use respiratory protective device against the effects of fumes/dust/aerosol.

Isolate area and prevent access.

Remove persons from danger area.

Ensure adequate ventilation

Protect from heat.

Keep away from ignition sources.

· **6.2 Environmental precautions:** *Do not allow to enter sewers/ surface or ground water.*

· **6.3 Methods and material for containment and cleaning up:**

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Dispose contaminated material as waste according to item 13.

· **6.4 Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

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7 Handling and storage

· 7.1 Precautions for safe handling

Handle with care. Avoid jolting, friction and impact.
Keep away from heat and direct sunlight.

· Information about fire - and explosion protection:

Prevent impact and friction.
Keep respiratory protective device available.
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:

Provide ventilation for receptacles.
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 flammable substances.
Do not store together with oxidizing and acidic materials.

· Further information about storage conditions:

Protect from heat and direct sunlight.
Store in dry conditions.
Store receptacle in a well ventilated area.

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

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:

57-50-1 sucrose, pure

PEL (USA)	15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	10 mg/m ³
EL (Canada)	10 mg/m ³
EV (Canada)	10 mg/m ³ total dust

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2698-41-1 [(2-chlorophenyl)methylene]malononitrile

PEL (USA)	0,4 mg/m ³ , 0,05 ppm
REL (USA)	Short-term value: C 0,4 mg/m ³ , C 0,05 ppm Skin
TLV (USA)	Short-term value: C 0,39 mg/m ³ , C 0,05 ppm Skin
EL (Canada)	Short-term value: C 0,05 ppm Skin
EV (Canada)	Skin

7440-21-3 silicon

PEL (USA)	15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	10* 5** mg/m ³ *total dust **respirable fraction
TLV (USA)	TLV withdrawn
EL (Canada)	10 mg/m ³
EV (Canada)	10 mg/m ³ total dust

- **DNELs** No further relevant information available.
- **PNECs** No further relevant information available.
- **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**· **Personal protective equipment:**· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Store protective clothing separately.
- Do not inhale gases / fumes / aerosols.
- Avoid contact with the eyes and skin.

· **Respiratory protection:**

Respiratory protection required.

Wear positive pressure NIOSH or European EN149 vapor respirators when deploying product in large quantities.

· **Protection of hands:**

Protective gloves

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

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Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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 can not be calculated in advance and has therefore to be checked prior to the application.

- **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**

Contact lenses should not be worn.



Safety glasses

- **Body protection:** Protective work clothing

- **Limitation and supervision of exposure into the environment**

No special requirements.

No further relevant information available.

- **Risk management measures**

See Section 7 for additional information.

Organizational measures should be in place for all activities involving this product.

No further relevant information available.

9 Physical and chemical properties

- **9.1 Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form: Solid material

Colour: Grey

- Odour: Characteristic

- Odour threshold: Not determined.

- pH-value: Not applicable.

- **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: Undetermined.

- Flash point: Not applicable.

- Flammability (solid, gaseous): Not determined.

- Ignition temperature: Not determined.

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· Decomposition temperature:	<i>Not determined.</i>
· Self-igniting:	<i>Product is not self-igniting.</i>
· Danger of explosion:	<i>Extreme risk of explosion by shock, friction, fire or other sources of ignition.</i>
· Explosion limits: Lower:	<i>Not determined.</i>
Upper:	<i>Not determined.</i>
· Vapour pressure:	<i>Not applicable.</i>
· Density:	<i>Not determined.</i>
· Relative density	<i>Not determined.</i>
· Vapour density	<i>Not applicable.</i>
· Evaporation rate	<i>Not applicable.</i>
· Solubility in / Miscibility with water:	<i>Insoluble.</i>
· Partition coefficient (n-octanol/water):	<i>Not determined.</i>
· Viscosity: Dynamic:	<i>Not applicable.</i>
Kinematic:	<i>Not applicable.</i>
· Solvent content: Organic solvents:	<i>Not determined.</i>
· 9.2 Other information	<i>No further relevant information available.</i>

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.
- **10.3 Possibility of hazardous reactions**
Danger of explosion.
Contact with acids releases toxic gases.
Reacts with oxidizing agents.
Toxic fumes may be released if heated above the decomposition point.
Acts as an oxidizing agent on organic materials such as wood, paper and fats.
Reacts with reducing agents.
- **10.4 Conditions to avoid** *No further relevant information available.*
- **10.5 Incompatible materials:** *No further relevant information available.*

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11 Toxicological information

- **11.1 Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values relevant for classification:**

3811-04-9 potassium chlorate

Oral LD50 1870 mg/kg (rat)

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **Sensitization:** Sensitization possible through skin contact.

- **Additional toxicological information:**

The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

Harmful

Irritant

Danger through skin adsorption.

- **Sensitisation:** Sensitization possible by inhalation and/or dermal contact.

- **Repeated dose toxicity:** Repeated exposures may result in skin and/or respiratory sensitivity.

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:**

This statement was deduced from the properties of the single components.

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.

Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

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

Also poisonous for fish and plankton in water bodies.

Toxic for aquatic organisms

- **12.5 Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

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· **12.6 Other adverse effects** No further relevant information available.

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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. Can be burned with household garbage after consulting with the waste disposal facility operator and the pertinent authorities and adhering to the necessary technical regulations.

· **Uncleaned packaging:**

· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· **14.1 UN-Number**

· DOT, ADR, IMDG, IATA

UN0303

· **14.2 UN proper shipping name**

· DOT, IATA

Ammunition, Smoke (Contains [(2-chlorophenyl) methylene]malononitrile)

· ADR

0303, Ammunition, Smoke (Contains [(2-chlorophenyl) methylene]malononitrile), ENVIRONMENTALLY HAZARDOUS

· IMDG

Ammunition, Smoke (Contains [(2-chlorophenyl) methylene]malononitrile), MARINE POLLUTANT

· **14.3 Transport hazard class(es)**

· DOT



· Class

1.4

· Label

1.4G+6.1+8

· ADR, IMDG



· Class

1.4

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· Label	1.4G+6.1+8
· IATA	
	
· Class	1.4
· Label	1.4G+6.1+8
· 14.4 Packing group	
· DOT, ADR, IMDG, IATA	II
· 14.5 Environmental hazards:	
· Marine pollutant:	No Symbol (fish and tree)
· Special marking (ADR):	Symbol (fish and tree)
· 14.6 Special precautions for user	Not applicable.
· EMS Number:	F-A,S-Q
· 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	0
· UN "Model Regulation":	UN0303, 0303, ENVIRONMENTALLY HAZARDOUS, 1.4G (6.1+8), II

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 is listed.

· Section 313 (Specific toxic chemical listings):

None of the ingredients is listed.

· TSCA (Toxic Substances Control Act):

All ingredients are listed.

· Proposition 65 (California):

· Chemicals known to cause cancer:

10294-40-3 | barium chromate

7440-02-0 | nickel

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

10294-40-3 | barium chromate

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

10294-40-3 | barium chromate

· **Chemicals known to cause developmental toxicity:***Present in trace quantities: Lead.*

10294-40-3 | barium chromate

7439-92-1 | lead

· **Carcinogenic Categories**· **EPA (Environmental Protection Agency)***None of the ingredients is listed.*· **IARC (International Agency for Research on Cancer)**

10294-40-3 | barium chromate

1

7440-02-0 | nickel

1

· **TLV (Threshold Limit Value established by ACGIH)**

57-50-1 | sucrose, pure

A4

2698-41-1 | [(2-chlorophenyl)methylene]malononitrile

A4

10294-40-3 | barium chromate

A1

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

10294-40-3 | barium chromate

7440-02-0 | nickel

· **OSHA-Ca (Occupational Safety & Health Administration)***None of the ingredients is listed.*· **Canada**· **Canadian Domestic Substances List (DSL)***All ingredients are listed.*· **Canadian Ingredient Disclosure list (limit 0.1%)**

10294-40-3 | barium chromate

· **Canadian Ingredient Disclosure list (limit 1%)**

2698-41-1 | [(2-chlorophenyl)methylene]malononitrile

· **15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.****16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**

H200 | Unstable explosives.

H228 | Flammable solid.

H271 | May cause fire or explosion; strong oxidiser.

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H272 May intensify fire; oxidiser.
 H301 Toxic if swallowed.
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H411 Toxic to aquatic life with long lasting effects.

R1 Explosive when dry.
 R20/22 Harmful by inhalation and if swallowed.
 R22 Harmful if swallowed.
 R25 Toxic if swallowed.
 R3 Extreme risk of explosion by shock, friction, fire or other sources of ignition.
 R36/37 Irritating to eyes and respiratory system.
 R36/37/38 Irritating to eyes, respiratory system and skin.
 R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R8 Contact with combustible material may cause fire.
 R9 Explosive when mixed with combustible material.

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 Harmonized System of Classification and Labelling of Chemicals
 ACGIH: American Conference of Governmental Industrial Hygienists
 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

Sources

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