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 5440 Launchable Flameless Expulsion OC**

· **Article number:** *Model 5440*

· **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**



GHS01 exploding bomb

Expl. 1.4 H204 Fire or projection hazard.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

· **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.

· **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.

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· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.
· **Hazard pictograms**



GHS01 GHS07

· **Signal word** *Warning*

· **Hazard-determining components of labelling:**
Oleoresin Capsicum
barium chromate
· **Hazard statements**
H204 Fire or projection hazard.
H302 Harmful if swallowed.
· **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.
P264 Wash thoroughly after handling.
P373 DO NOT fight fire when fire reaches explosives.
P372 Explosion risk in case of fire.
· **Additional information:**
Contains nickel. May produce an allergic reaction.
· **Hazard description:**
· **WHMIS-symbols:**
D1A - Very toxic material causing immediate and serious toxic effects
D2B - Toxic material causing other toxic effects
E - Corrosive material
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

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· **HMIS Long Term Health Hazard Substances**

7440-02-0	*nickel*

· **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.

3 Composition/information on ingredients

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

· **Dangerous components:**

CAS: 1309-48-4 *EINECS: 215-171-9* *Index number: 025-199-09-0*	*magnesium oxide* *substance with a Community workplace exposure limit*	*>50%*
CAS: 68611-44-9 *EINECS: 271-893-4*	*silica dimethyl silyate*	*10-25%*
CAS: 8023-77-6 *EINECS: 288-920-0*	*Oleoresin Capsicum* *T R25; Xn R21; Xi R36/37/38* *Acute Tox. 2, H300; Acute Tox. 3, H311* *Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335*	*5-15%*
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*	*<5,0%*
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*	*<1,0%*

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

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· **Notable Trace Components (< 0.1% w/w)**	
CAS: 122-39-4 *EINECS: 204-539-4* *Index number: 612-026-00-5*	*diphenylamine* *T R23/24/25; N R50/53* *R33* *Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331* *STOT RE 2, H373* *Aquatic Acute 1, H400; Aquatic Chronic 1, H410*
CAS: 55-63-0 *EINECS: 200-240-8* *Index number: 603-034-00-X*	*glycerol trinitrate* *T+ R26/27/28; E R3; N R51/53* *R33* *Unst. Expl., H200* *Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330* *STOT RE 2, H373* *Aquatic Chronic 2, H411* *Flam. Liq. 2, H225*

4 First aid measures

· **4.1 Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
Immediately remove any clothing soiled by the product.
In case of irregular breathing or respiratory arrest provide artificial respiration.
· **After inhalation:** *Supply fresh air; consult doctor in case of complaints.*
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:**
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**
Breathing difficulty
Coughing
Dizziness
Headache
Disorientation
Allergic reactions
· **Hazards**
Danger of impaired breathing.
Danger of pulmonary oedema.
Danger of convulsion.
Danger of disturbed cardiac rhythm.

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· **4.3 Indication of any immediate medical attention and special treatment needed**
If swallowed, gastric irrigation with added, activated carbon.
Severe allergic skin reaction, bronchial spasms and anaphylactic shock are possible.
In cases of irritation to the lungs, initial treatment with cortical steroid inhalants.
Treat skin and mucous membrane with antihistamine and corticoid preparations.
Monitor circulation, possible shock treatment.
If necessary oxygen respiration treatment.
Later observation for pneumonia and pulmonary oedema.
Medical supervision for at least 48 hours.

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**
Formation of toxic gases is possible during heating or in case of fire.
· **5.3 Advice for firefighters**
· **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
· **Additional information**
Cool endangered receptacles with water spray.
Evacuate area and fight fire from from the upwind side.
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.
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Protect from heat.
· **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.

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

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:**
Avoid storage near extreme heat, ignition sources or open flame.
Observe official regulations on storing packagings with pressurized containers.
· **Information about storage in one common storage facility:**
Store away from foodstuffs.
Do not store together with oxidizing and acidic materials.
· **Further information about storage conditions:**
Store in dry conditions.
Protect from heat and direct sunlight.
· **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:**	
1309-48-4 magnesium oxide	
PEL (USA)	*15* mg/m³* *fume; *total particulate*
TLV (USA)	*10* mg/m³* **as inhalable fraction*
EL (Canada)	*Short-term value: 10** mg/m³* *Long-term value: 10* 3** mg/m³* **inhalable fume;**respirable dust and fume*
EV (Canada)	*10 mg/m³* *inhalable*

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10294-40-3 barium chromate	
PEL (USA)	*Short-term value: C 0,1* mg/m³* **as CrO3*
REL (USA)	*0,001 mg/m³* *as Cr(VI), 10-hr TWA*
TLV (USA)	*0,05 mg/m³* *as Cr*
EL (Canada)	*Short-term value: C0,1 mg/m³* *Long-term value: 0,025 mg/m³* *as Cr; ACIGH A1, IARC 1*

· **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:**



Combined Organic Vapor and Particulate Respirator is recommended for use during all processing activities.

· **Protection of hands:**



Protective gloves

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

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· **Eye protection:**
Contact lenses should not be worn.



Safety glasses

· **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.
See Section 7 for additional information.
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:**	*Odourless*
· **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.*
· **Decomposition temperature:**	*Not determined.*
· **Self-igniting:**	*Product is not self-igniting.*
· **Danger of explosion:**	*Extreme 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:**	*Not determined.*
· **Relative density**	*Not determined.*

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· **Vapour density**	*Not applicable.*
· **Evaporation rate**	*Not applicable.*
· **Solubility in / Miscibility with water:**	*Insoluble.*
· **Partition coefficient (n-octanol/water):**	*Not determined.*
· **Viscosity:**	
Dynamic:	*Not applicable.*
Kinematic:	*Not applicable.*
· **9.2 Other information**	*No further relevant information available.*

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 receptacles bursting because of high vapour pressure when heated.
Reacts with acids.
Reacts with strong oxidizing agents.
· **10.4 Conditions to avoid** *Keep away from heat and direct sunlight.*
· **10.5 Incompatible materials:** *No further relevant information available.*
· **10.6 Hazardous decomposition products:**
Hydrogen chloride (HCl)
Strong tear gas
Bariumoxide vapour
Nitrogen oxides
Carbon dioxide

11 Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values relevant for classification:**		
8023-77-6 Oleoresin Capsicum		
Oral	*LD50*	*47,2 mg/kg (mouse)*
		3000 mg/kg (rat)
Dermal	*LD50*	*512 mg/kg (mouse)*

· **Primary irritant effect:**
· **on the skin:** *Irritant to skin and mucous membranes.*
· **on the eye:** *Irritating effect.*

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· **Sensitization:**
Sensitizing effect by skin contact is possible by prolonged exposure.
Sensitizing effect through inhalation is possible by prolonged exposure.
· **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:** *The product contains materials that are harmful to the environment.*
· **12.2 Persistence and degradability** *The product is partially biodegradable. Significant residuals remain.*
· **12.3 Bioaccumulative potential** *May be accumulated in organism*
· **12.4 Mobility in soil** *No further relevant information available.*
· **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.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*
· **12.6 Other adverse effects** *No further relevant information available.*

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.

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

14 Transport information

· **14.1 UN-Number**	
· **DOT, ADR, IMDG, IATA**	*UN0301*
· **14.2 UN proper shipping name**	
· **DOT, IMDG, IATA**	*Ammunition, Tear Producing (Contains Chloroacetophenone)*
· **ADR**	*0301 Ammunition, Tear Producing (Contains Chloroacetophenone)*
· **14.3 Transport hazard class(es)**	
· **DOT**	
· **Class**	*1.4*
· **Label**	*1.4G+6.1+8*
· **ADR, IMDG, 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*
· **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.*
· **UN "Model Regulation":**	*UN0301, 0301, 1.4G (6.1+8), II*

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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):**

All ingredients are 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*

· **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)**

7440-02-0	*nickel*	*A5*
1309-48-4	*magnesium oxide*	*A4*
10294-40-3	*barium chromate*	*A1*
122-39-4	*diphenylamine*	*A4*

· **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.

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· **Canada**

· **Canadian Domestic Substances List (DSL)**
All ingredients are listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**	
10294-40-3	*barium chromate*
7440-02-0	*nickel*

· **Canadian Ingredient Disclosure list (limit 1%)**	
1309-48-4	*magnesium oxide*

· **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**

H300 *Fatal if swallowed.*
H302 *Harmful if swallowed.*
H311 *Toxic in contact with skin.*
H315 *Causes skin irritation.*
H317 *May cause an allergic skin reaction.*
H319 *Causes serious eye irritation.*
H332 *Harmful if inhaled.*
H335 *May cause respiratory irritation.*
H351 *Suspected of causing cancer.*
H372 *Causes damage to organs through prolonged or repeated exposure.*

R20/22 *Harmful by inhalation and if swallowed.*
R21 *Harmful in contact with skin.*
R25 *Toxic if swallowed.*
R36/37/38 *Irritating to eyes, respiratory system and skin.*
R40 *Limited evidence of a carcinogenic effect.*
R43 *May cause sensitisation by skin contact.*
R48/23 *Toxic: danger of serious damage to health by prolonged exposure through inhalation.*

· **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

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· **Sources**

SDS Prepared by:
ChemTel Inc.
1305 North Florida Avenue
Tampa, Florida USA 33602-2902
Toll Free North America 1-888-255-3924 Intl. +01 813-248-0573
Website: www.chemtelinc.com