



# Material Safety Data Sheet

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND COMPANY IDENTIFICATION

**Product Name:** i-kon Electronic Detonators  
**Product Code:** 20174  
**Alternate Names:** i-kon R, i-kon RX, i-kon SNS, i-kon TX, i-kon VS, i-kon X-414, i-kon X-416, i-kon X-418, i-kon XT  
**UN No.:** UN0255, UN0456 or UN0030 (Depending on packaging used)  
**Recommended Use:** All i-kon detonator types are used as initiators for detonator sensitive explosives, except the i-kon SNS detonator, which is used for initiation of non-electric detonator assemblies or detonating cords.

**Suppliers:**  
Orica Canada Inc. Orica USA Inc.  
301 Hotel de Ville, 33101 E. Quincy Avenue  
Brownsburg-Chatham, QC J8G 3B5 Watkins, CO 80137  
For MSDS Requests: 1-450-533-4201 For MSDS Requests: 1-303-268-5000

## EMERGENCY CONTACT TELEPHONE NUMBERS

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA CANADA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636**. **IN THE U.S. CALL:** CHEMTREC **1-800-424-9300**. **IN THE U.S.:** FOR LOST, STOLEN OR MISPLACED EXPLOSIVES CALL BATF **1-800-800-3855**. FORM ATF F5400.0 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE / MUNICIPAL POLICE, ETC) MUST BE ADVISED.

## SECTION 2. HAZARDS IDENTIFICATION

**Emergency Overview:** The following information is the potential hazards associated with the ingredient(s) in this product. It is our belief that, under conditions of normal occupational exposure, this product should pose no such hazards to the user. Main risk is that of explosion by shock, friction, fire or other sources of ignition. Read the entire MSDS for a more thorough evaluation of the hazards.

**Appearance:** Ingredients are housed in a metal alloy tube closed at one end with a moulded plastic plug and attached electric lead wires at the opposite end. The detonator of the i-kon SNS assembly is housed in a plastic connected block.

## SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight %
Metal and Plastic component articles	Not Listed	90-100
Pentaerythritol tetranitrate (PETN)	78-11-5	<1.0
2,4,6-Trinitrotoluene (TNT)	118-96-7	<1.0
Lead azide	13424-46-9	< 0.1
Lead chromate	7758-97-6	< 0.1

## SECTION 4. FIRST-AID MEASURES

**General:** Not applicable; this is a manufactured article that will not result in exposure to the chemical components under normal conditions of use. In the event of contact causing injury, administer first aid appropriate for burns, lacerations and bruises.

**Inhalation:** In the event that workers are overexposed to fumes and vapors resulting from detonation, remove victim from exposure and provide artificial respiration if not breathing.

## SECTION 5. FIRE-FIGHTING MEASURES

**Flammable properties:** **PRODUCT WILL DETONATE.** Expected to be sensitive to mechanical impact. i-kon detonators have built-in protection against human body generated electrostatic charges but should be kept away from more powerful electrical stimuli such as grid voltages and lightning.

**Precautions for Fire Fighters:** **DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.** This product is a high explosive with a mass detonation hazard. Mass detonation only applies to the 1.1B explosives classification.

**IMMEDIATELY EVACUATE ALL PERSONNEL FROM THE AREA TO A SAFE DISTANCE. GUARD AGAINST RE-ENTRY.**

When controlling fire before involvement of explosives, firefighters should wear positive pressure self-contained breathing apparatus (SCBA) and full protective gear. Keep product and empty container away from heat and sources of ignition. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate. Water may be used on small fires. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**Spills, Leaks or Releases:** If not damaged, pick up by hand. Use normal precautions taken for handling explosives.  
**Deactivating Chemicals:** Not required. If detonators are damaged, contact an Orica Canada Inc. or Orica USA Inc. technical representative.

## SECTION 7. HANDLING AND STORAGE

**Handling:** i-kon detonators are explosive devices and should only be used under the supervision of trained personnel. Protect containers from physical damage. Keep away from incompatible materials, heat, sparks, flames and other ignition sources. Avoid rough handling.

**Storage:** Store under moderate temperatures recommended by a technical services representative. Store under dry conditions in a well ventilated magazine that has been approved for detonator storage. Do NOT store detonators in an explosives magazine. Keep away from heat, sparks and flames. Keep containers closed. i-kon detonators should be kept well away from explosives products; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Keep away from incompatibles. Meet all legal requirements for shipping and magazine storage.

**Storage Temperature:** It is recommended that detonators not be stored or used at temperatures exceeding 70°C (158°F) without approved procedures to address the elevated temperatures.

## SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Preventive Measures:** Recommendations listed in this section indicate the type of equipment that will provide protection against exposure to this product under normal conditions of use. Conditions of use, adequacy of engineering or other control measures, and actual exposure situations will dictate the need for specific protective devices at your workplace.

**Engineering controls:** Full-handling precautions should be taken at all times.

### PERSONAL PROTECTIVE EQUIPMENT:

**Eye protection:** Safety glasses with side-shields.  
**Skin protection:** Gloves and protective clothing made from cotton should provide adequate protective.  
**Respiratory protection:** No special protective equipment required.  
**General hygiene considerations:** Handle in accordance with good industrial hygiene and safety practice.

### EXPOSURE GUIDELINES:

**Product:** None established for product

**Hazardous Ingredients:** Most likely exposure is from detonation products such, as Nitrogen Dioxide or Carbon Monoxide.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State:</b>	Article
<b>Alternate Name(s):</b>	None
<b>Chemical Name:</b>	Not applicable
<b>Chemical Family:</b>	Explosive
<b>Molecular Formula:</b>	Not applicable
<b>Odor:</b>	Odorless.
<b>pH:</b>	Not applicable
<b>Vapor pressure (mmHg at 20°C/68°F)</b>	Not applicable
<b>Vapor density (Air = 1)</b>	Not applicable
<b>Boiling Point</b>	Not applicable
<b>Solubility (Water)</b>	Not applicable
<b>Solubility (Other)</b>	Not applicable
<b>Specific Gravity:</b>	Not applicable
<b>Evaporation Rate:</b>	Not applicable
<b>Melting point/range:</b>	PETN melts at 284°F / 140°C Pentolite (a blend of TNT and PETN) melts at 176°F/ 80°C

## SECTION 10. STABILITY AND REACTIVITY

**Stability:** Can explode from impact, friction, excessive heating or powerful electrical stimuli such as grid voltages and lightning.  
**Conditions to avoid:** Keep away from impact, friction or heat.  
**Incompatible materials:** Strong oxidizing agents.  
**Hazardous decomposition products:** Thermal decomposition products are toxic and may include lead, hydrocarbons, oxides of carbon and nitrogen.  
**Hazardous Polymerization:** None under normal processing



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## SECTION 11. TOXICOLOGICAL INFORMATION

The construction of these articles should prevent any chemical contamination. No adverse health effects are expected if the product is handled in accordance with this Material Safety Data Sheet and the manufacturer's recommendations.

The following information relates to the pure ingredients of this product. Symptoms or effects that may arise if the article is mishandled and overexposure occurs:

### TOXICOLOGICAL DATA:

**PRODUCT:** None established for the product.  
**INGREDIENTS:** PETN - Oral LD50 (mouse) = 25,000 mg/kg  
TNT - Oral LD50 (rat) = 795 mg/kg

### POTENTIAL HEALTH EFFECTS:

**Ingestion:** Highly unlikely under normal conditions of use.

**Inhalation:** Inhalation is not a likely route of exposure due to the physical form of the article and is thus not applicable. Detonation products may be irritating and/or toxic. Test firing of detonators in poorly ventilated areas can cause presence of lead fume in air. Lead fumes may be an irritant to mucous membranes and respiratory tract.

**Skin Contact:** No evidence of irritant effects from normal handling and use.

**Eye Contact:** May result in physical injury.

**Sub chronic Effects:** None known

**Chronic Effects:** Long-term exposure to low concentrations of lead may result in altered hemoglobin breakdown, anemia and central and peripheral nervous system damage.

**Carcinogenicity:** The ingredients of this product are not classified as carcinogenic by ACGIH (American Conference of Governmental Industrial Hygienists) or IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration), and not listed as carcinogens by NTP (National Toxicology Program).

**Mutagenicity:** There is no evidence of mutagenic potential

**Reproductive Effects:** It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead exposure may cause reproductive effects based on studies in laboratory animals and on human epidemiological studies.

**Teratogenicity and Fetotoxicity:** It is our belief that under normal conditions of use, this product should pose no reproductive hazard to the worker. Lead has been shown to cause congenital abnormalities and behavioral deficits in experimental animals in addition to its ability to increase the number of miscarriages, stillbirths and abortions in lead-exposed women.

**Synergistic Materials:** None known.

## SECTION 12. ECOLOGICAL INFORMATION

**Environmental Effects:** In consideration of the production and use of this product, it is unlikely that significant environmental exposure will arise.

**Ecotoxicity:** Contains no substances known to be hazardous to the environment or not degradable in wastewater treatment plants.

## SECTION 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Method:** Burn under supervision of an expert at a government-approved explosive burning ground or destroy, by detonation in boreholes, in accordance with applicable local, provincial and federal laws. Call upon the services of an Orica Canada Inc. or Orica USA Inc. technical representative

## SECTION 14. TRANSPORT INFORMATION

<b>DOT:</b>			
<b>Proper shipping name:</b>	Detonators, Electric	Detonators, Electric	Detonators, Electric
<b>Hazard Class</b>	1.4.B	1.4S	1.1B
<b>UN:</b>	0255	0456	0030
<b>Packing group</b>	II	II	II

<b>TDG:</b>			
<b>Proper shipping name:</b>	Detonators, Electric	Detonators, Electric	Detonators, Electric
<b>Hazard Class:</b>	1.4B	1.4S	1.1B
<b>UN:</b>	0255	0456	0030
<b>Packing group</b>	II	II	II



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## SECTION 15. REGULATORY INFORMATION

**CANADIAN CLASSIFICATION:** This product has been classified in accordance with the hazard criteria of the CPR (Controlled Products Regulations) and this MSDS (Material Safety Data Sheet) contains all the information required by the CPR.

**Controlled Products Regulations (WHMIS) Classification:** This product is an explosive and is not regulated by WHMIS

**CEPA / Canadian Domestic Substances List (DSL):** The substances in this product are on the Canadian Domestic Substances List (CEPA DSL)

**IARC Classification:** None of the components for this product are listed on IARC.

### USA CLASSIFICATION:

**OSHA Classification: Physical:** Explosive. Oxidizer. **Health:** Not Regulated.

**Target Organ:** Reproductive Tract (Lead)

**SARA Regulations Sections 313 and 40CFR 372:** This product does not contain any chemicals subject to the reporting requirements.

**Ozone Protection and 40CFR 42:** This product does not contain, nor is it manufactured with ozone depleting substances.

**Other Regulations/Legislation which apply to this product:** New Jersey Special Health Hazard Substance List, New Jersey RTK Environmental Hazardous Substance, Massachusetts Right-to-Know, New Jersey Right-to-Know.

## SECTION 16. OTHER INFORMATION

**Prepared by:** Safety, Health and Environment (303) 268-5000

**Next Revision:** March 4, 2012

**Disclaimer:** The information contained herein is offered as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Orica will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein.

End of MSDS