

## SAFETY DATA SHEET

In accordance with ISO 11014: 2009 for Transport purpose

---

### Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

---

**Product identifier**

<b>Product name</b>	Seat-belt pretensioner
<b>SDS Number</b>	PT-003-001

**Manufacture/supplier**

<b>Manufacture/supplier</b>	TOKAI RIKA CO., LTD.
<b>Department in Charge</b>	Safety Engineering Division
<b>Address</b>	3-260 Toyota Oguchi-cho, Niwa-gun, Aichi 480-0195, Japan
<b>Telephone number</b>	+81-(0)587-95-0040
<b>Fax number</b>	+81-(0)587-95-0026
<b>e-mail address</b>	
<b>Emergency telephone number</b>	+81-(0)587-95-0334

**Recommended use and restriction on use**

Seat-belt pretensioner

---

### Section 2: HAZARDS IDENTIFICATION

---

**Important hazards****GHS classification****Physical Hazards**

Explosive	Division 1.4S
-----------	---------------

**Health Hazards**

Acute toxicity (oral):	Category 4
Eye damage/irritation:	Category 1
Skin sensitization:	Category 1
Reproductive cell mutagenicity:	Category 2
Carcinogenicity:	Category 2
Reproductive toxicity:	Category 1
Specific target organ toxicity (single exposure):	Category 1 (central nervous system, blood system)
Specific target organ toxicity (single exposure):	Category 3 (respiratory tract irritation, narcotic effects)
Specific target organ toxicity (repeated exposure):	Category 2 (liver, blood system, nervous system, testis, kidney, respiratory organs)

**Environmental Hazards**

Ecotoxicity (acute)	Category 1
Ecotoxicity (chronic)	Category 1

**Label Elements**

**Pictogram**

**None**

**Signal word**

**Danger**

**Hazard Statements**

Fire or projection hazard  
Harmful if swallowed  
May cause an allergic skin reaction  
Causes serious eye damage  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of causing genetic defects  
Suspected of causing cancer  
May damage fertility or the unborn child  
Causes damage to central nervous system, blood system  
May cause damage to respiratory  
May cause damage to liver, blood system, nervous system, testis, kidney, respiratory organs through prolonged or repeated exposure  
Very toxic to aquatic life  
Very toxic to aquatic life with long lasting effects

**Precautionary Statements**

**[Prevention]**

Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Keep away from heat/sparks/open flames/hot surfaces. No smoking.  
Ground/bond container and receiving equipment.  
Do not subject to grinding/shock/friction.  
Do not breathe dust/fume/gas/mist/vapours/spray.  
Wash hands thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Use only outdoors or in a well-ventilated area.  
Contaminated work clothing should not be allowed out of the workplace.  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.

**[Emergency response]**

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
IF ON SKIN: Wash with plenty of water.  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
IF exposed or concerned: Get medical advice/attention.  
Immediately call a POISON CENTER/doctor.

	Rinse mouth.
	If skin irritation or rash occurs: Get medical advice/attention.
	Take off contaminated clothing and wash it before reuse.
	In case of fire: Evacuate area.
	Explosion risk in case of fire.
	DO NOT fight fire when fire reaches explosives.
	Fight fire with normal precautions from a reasonable distance.
	Collect spillage.
[Storage]	Store in accordance with applicable local, regional and international regulations and standards.
	Store in a well-ventilated place. Keep container tightly closed.
	Store locked up.
[Disposal]	Dispose of contents/ container in accordance with related laws and local/ regional regulations.

#### **Other hazards**

The Electric Gas Generator is not dangerous if correctly handled.

When ignited, gases are axially ejected from the extremity of the case and the metallic parts could reach 100°C.

In order to prevent unintentional ignition the handling and storage instructions must be adhered to (See Chapter 7).

Mechanical reworking, or introduction of electrical energy is forbidden as well as shock waves, impacts, shocks and heating.

After functioning the Electric Gas Generator becomes inert, but direct contact to skin or eyes of any free pyrotechnic residues should be avoided, as should inhalation and ingestion.

Carcinogenicity is not expected when used as intended.

The electric gas generator is a metal cylinder shape sealed up, and there is not the thing that it is absorbed in the human body unless swallow it intentionally.

#### **Important symptoms and an outline of an anticipated emergency**

Harmful if swallowed

May cause an allergic skin reaction

Causes serious eye damage

May cause respiratory irritation

May cause drowsiness or dizziness

Suspected of causing genetic defects

Suspected of causing cancer

May damage fertility or the unborn child

Causes damage to central nervous system, blood system

May cause damage to respiratory

May cause damage to liver, blood system, nervous system, testis, kidney, respiratory organs through prolonged or repeated exposure

---

### **Section 3: COMPOSITION/ INFORMATION ON INGREDIENTS**

---

#### **Substance/Mixture**

Mixture

## Compositions

### 1. Squib powder of Zr-Type (MAX charge weight: 60 mg)

Chemical name/ Generic name	CAS number	Concentration (wt %)
Zirconium	7440-67-7	1.74
Potassium Perchlorate	7778-74-7	1.16

### 2. Gas generant (MAX charge weight: 2,000 mg)

Chemical name/ Generic name	CAS number	Concentration (wt %)
Nitrocellulose	9004-70-0	91.1
Diphenylamine	122-39-4	
2,4-Dinitro toluene	121-14-2	4.8
Dibutyl phthalate	84-74-2	1.3

---

## Section 4: FIRST-AID MEASURES

---

### First aid procedures

IF INHALED	Consult a doctor if massive inhalation of combustion gases occurs. If Electric Gas Generator is ignited in a closed room this should be sufficiently aired.
IF ON SKIN	Wash with soap and water, and consult a doctor.
IF IN EYES	Immediately rinse cautiously with water for 15 - 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF SWALLOWED	Consult a doctor. If swallowed it, rinse out a mouth, and receive the diagnosis of the doctor without vomiting forcibly.

### Anticipated acute effects, anticipated delayed effects and most important symptoms/effects

No information

### Protection of first-aiders

Wear appropriate eyes and skin protective equipment.

### Note to an attending physician

No information

---

## Section 5: FIRE-FIGHTING MEASURES

---

### Extinguishing media

#### Suitable extinguishing media

Plenty of water

#### Unsuitable extinguishing media

None

### Specific hazards arising from the chemical

Poisonous gases of a nitrogen oxide and carbon monoxide are generated.

The poisonous gases which are specific for products are not generated.

When fire extinguishing is initial or small amount, you pour water from safe distance, and extinguish a fire. Evacuate immediately without extinguishing a fire when fire extinguishing is difficult.

### Protective equipment and precautions for firefighters

Wear gas mask.

---

## Section 6: ACCIDENTAL RELEASE MEASURES

---

### Personal precautions

The product is sealed up, and there is little fear that an internal chemical substance leaks in the normal handling.

### Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

### Methods and materials for containment and cleaning up

Collect released Electric Gas Generators, and wet them to reduce their reactivity.

Damaged Electric Gas Generators should be sent back to the manufacturer in approved packaging, correctly labeled.

### Secondary disaster prevention measures

No information

---

## Section 7: HANDLING AND STORAGE

---

### Handling

Technical measures

Electric Gas Generators must be handled with care and only by personnel properly trained for the task.

Never connect any electrical apparatus to the Electric Gas Generators.

Never try to mount damaged Electric Gas Generators or to repair them.

Never machine, drill, weld, solder or heat this Electric Gas Generator.

Never expose Electric Gas Generators to chemicals which could harm them.

This Electric Gas Generator can become a dangerous projectile when ignited outside its pretensioner.

This advice is only part of the recommendations to be followed.

Precautions such as local/total ventilation

The place where the ventilation is good under normal temperature. (place of fresh air)

Precautions for safe handling

Wash hands thoroughly after handling.

Prevention of contact

Avoid the approach of the shock, friction and ignition source

(fire, spark, high temperature body).  
Do not bleach it to destroyed chemicals.

## Storage

Technical measures	Regulations issued by local authorities regarding pyrotechnic device storage must be observed. Store Electric Gas Generator only in storage and transportation approved containers. Never store the Electric Gas Generator above 45°C, for a long time, or in humid conditions. Never store Electric Gas Generators in areas with strong electromagnetic fields. Fire extinguishers must always be available in the storage area.
Incompatible materials and mixtures	The thing which promotes the resolution such as acid, alkali.
Conditions for safe storage	Avoid storing under high temperature and high humidity. Store at room temperature.
Packing material	Use the thing which does not cause a chemical reaction. An antistatic bag, conductivity.

---

## Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

---

### Permissible concentration

#### Occupational Exposure Limits

ACGIH TLV-TWA (2016)	5 mg/m <sup>3</sup> (Zirconium and compounds, as Zr) 10 mg/m <sup>3</sup> (Diphenylamine) 0.2 mg/m <sup>3</sup> (Dinitro toluene) 5 mg/m <sup>3</sup> (Dibutyl phthalate)
ACGIH TLV-STEL (2016)	10 mg/m <sup>3</sup> (Zirconium and compounds, as Zr)

### Engineering controls

No information

### Personal protective equipment

Respiratory protection	Wear dust protective mask.
Hand protection	Wear fireproofed gloves.
Eye protection	Wear safety goggles.
Skin and body protection	Wear fireproofed working clothes.

---

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

---

### Squib powder

Appearance	Form: Discal lump
(physical state, form and colour)	Colour: Gray
Odour	None
Odour threshold	No information

pH	No information
Melting point/ freezing point	No information
Boiling point, initial boiling point and boiling range	No information
Flashpoint	No information
Evaporation rate	No information
Flammability	No information
Upper/lower explosive limits	No information
Vapour pressure	No information
Vapour density	No information
Specific gravity	0.8 g/cm <sup>3</sup>
Solubility	Insoluble
<i>n</i> -octanol/water partition coefficient	No information
Auto-ignition temperature	390°C
Decomposition temperature	No information
Viscosity	No information
Other information	No information
<b>Gas generant</b>	
Appearance	Form: Columnar grain
(physical state, form and colour)	Colour: Light yellow or black by the black lead luster
Odour	None
Odour threshold	No information
pH	No information
Melting point/ freezing point	No information
Boiling point, initial boiling point and boiling range	No information
Flashpoint	No information
Evaporation rate	No information
Flammability	No information
Upper/lower explosive limits	No information
Vapour pressure	No information
Vapour density	No information
Specific gravity	1.6 g/cm <sup>3</sup>
Solubility	No information
<i>n</i> -octanol/water partition coefficient	No information
Auto-ignition temperature	200°C
Decomposition temperature	No information
Viscosity	No information
Other information	No information

---

## Section 10: STABILITY AND REACTIVITY

---

Chemical stability	If correctly handled, and stocked, this Electric Gas Generator is stable and presents no danger.
Hazardous reactions	When ignited this Electric Gas Generators could give off low levels of CO, H <sub>2</sub> , NO <sub>x</sub> .

Conditions to avoid	Leaving for the long time at the position equal to high temperature or the direct rays of the sun.
Incompatible materials	Acid, Alkali
Hazardous decomposition products	The nitrogen oxide which is composed primarily of nitrogen dioxide.

---

## Section 11: TOXICOLOGICAL INFORMATION

---

### Toxicological information for product

No information

### Toxicological information for ingredients

#### Zirconium

Specific target organ toxicity (single exposure):	This substance has been reported that there is respiratory tract irritation.
---	--

#### Potassium Perchlorate

Skin irritation/corrosion:	Skin is stimulated as affect of the humans.
Eye damage/irritation:	Eye is stimulated as affect of the humans.
Specific target organ toxicity (single exposure):	Airway is stimulated as effect on the humans, it was judged that it has respiratory irritant.
Specific target organ toxicity (repeated exposure):	Report of effect of long-term or repeated exposure, blood may be affected and methemoglobin may be generated.

#### Nitrocellulose

Acute toxicity (oral):	Rat LD <sub>50</sub> > 5,000 mg/kg
Specific target organ toxicity (single exposure):	Ingestion poisoning with the substance is similar to ethanol overdose except for a more rapid onset and a shorter duration of symptoms. Inhalation of the substance may result in dizziness, giddiness, euphoria, and CNS depression. In addition, labored breathing and unconsciousness may occur.

#### Diphenylamine

Acute toxicity (oral):	Rat LD <sub>50</sub> = 2,960 mg/kg, 2,480 mg/kg, 3,000 mg/kg, 2,700 mg/kg, 3,200 mg/kg
Acute toxicity (dermal):	Rabbit LD <sub>50</sub> > 2,000 mg/kg
Eye damage/irritation:	Report on rabbit eye irritation tests: "corrosive"
Reproductive toxicity:	Report on the evidence of adverse effects on reproduction at dosing levels toxic to parental animals or in the absence of data on parental toxicity.
Specific target organ toxicity (single exposure):	In humans, respiratory tract irritation. In addition, report of the methemoglobinemia or impact on the urinary.
Specific target organ toxicity (repeated exposure):	As poisoning symptoms caused by occupational exposure to this substance in humans, bladder irritation symptoms, tachycardia, hypertension, eczema are reported.



#### 2,4-Dinitro toluene

Acute toxicity (oral):	Rat LD <sub>50</sub> = 324 mg/kg
Reproductive cell mutagenicity:	Report on positive data on somatic cell mutagenicity tests in vivo (micronucleus tests).
Carcinogenicity:	This substance is classified as Group 2B by IARC (1996).
Reproductive toxicity:	The results of rat 3-generation reproduction studies suggest a decrease in the survival rate of newborns at dose levels toxic to parent animals; those of tests on male genital organs suggest atrophy of seminiferous tubules and severe spermatogenic disorder at dose levels causing adverse effects on body weight gain.
Specific target organ toxicity (repeated exposure):	Report on the evidence from animal studies including "hepatocellular degeneration, hyperplasia of the bile duct epithelium, methemoglobinemia, anemia, demyelination of the brain stem and cerebellum, neuropathy, atrophy of testes".

#### Dibutyl phthalate

Acute toxicity (oral):	Rat LD <sub>50</sub> = 6,300 mg/kg
Acute toxicity (dermal):	Rabbit LD <sub>50</sub> ≥ 4,000 mg/kg
Acute toxicity (inhalation: dust/mist):	Rat LC <sub>50</sub> (mist) ≥ 15.68 mg/L
Skin sensitization:	Phthalic acid di-n-butyl does not cause skin sensitization in experimental animals; some human cases suggest positive results.
Reproductive toxicity:	Rat and mouse reproductive toxicity tests suggest a decrease in F0 reproductive potential, testis atrophy, a decrease in sperm production potential, abortion during the middle stages of pregnancy, a decrease in litter size; Rat and mouse teratogenicity tests suggest malformations in offspring (external/skeletal malformations), and developmental abnormalities in the testes and accessory reproductive gland of next-generation rats; General toxicity to parental animals is observed; No description is available for the effects on parental animals.
Specific target organ toxicity (single exposure):	Irritation on upper respiratory tract and respiratory depression were noted in inhalation study with mice at 250 mg/m <sup>3</sup> (0.125 mg/L/4h corresponding to the guidance value).
Specific target organ toxicity (repeated exposure):	Hyperplasia of nasal mucosa cell and squamous metaplasia of pharynx were noted in inhalation study with rat at a concentration range corresponding to the category 1 (118 mg/m <sup>3</sup> (0.00036 mg/L/6h corresponding to the guidance value)).

---

## Section 12: ECOLOGICAL INFORMATION

---

### Ecological information for product

Ecotoxicity	No information
-------------	----------------

Persistence and degradability	No information
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

#### Ecological information for ingredients

##### Potassium Perchlorate

Ecotoxicity (acute)	Algae ( <i>Dunaliella</i> ) 72h EC <sub>50</sub> = 11,000 µg/L
Ecotoxicity (chronic)	No information
Persistence and degradability	No information
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

##### Nitrocellulose

Ecotoxicity (acute)	Algae ( <i>Pseudokirchneriella subcapitata</i> ) 96h EC <sub>50</sub> = 579,000 µg/L
Ecotoxicity (chronic)	No information
Persistence and degradability	No information
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

##### Diphenylamine

Ecotoxicity (acute)	Crustaceans ( <i>Daphnia magna</i> ) 48h EC <sub>50</sub> = 0.31 mg/L
Ecotoxicity (chronic)	Algae ( <i>Pseudokirchneriella subcapitata</i> ) 72h NOEC = 0.0273 mg/L
Persistence and degradability	Biodegradability by BOD = 0%
Bioaccumulative potential	No information
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

##### 2,4-Dinitro toluene

Ecotoxicity (acute)	Fish ( <i>Lepomis macrochirus</i> ) 96h LC <sub>50</sub> = 0.33 mg/L
Ecotoxicity (chronic)	Crustaceans ( <i>Daphnia magna</i> ) 21d NOEC = 0.02 mg/L
Persistence and degradability	Biodegradability by BOD = 0%
Bioaccumulative potential	log K <sub>ow</sub> = 1.98
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

##### Dibutyl phthalate

Ecotoxicity (acute)	Fish ( <i>Perca flavescens</i> ) 96h LC <sub>50</sub> = 0.35 mg/L
Ecotoxicity (chronic)	Fish ( <i>Oncorhynchus mykiss</i> ) 99d NOEC = 0.10 mg/L

Persistence and degradability	Biodegradability by BOD = 69%
Bioaccumulative potential	BCF = 176
Mobility in soil	No information
Hazardous to the ozone layer	Not applicable

---

### Section 13: DISPOSAL CONSIDERATIONS

---

#### Remaining product

Active Electric Gas Generators (non ignited) are pyrotechnic devices of class 1.4C (if they are in their original packaging).

They can be made inert by ignition, or destroyed by an approved organization.

#### Contaminated containers and packaging

Ask the specialty supplier who received permission of the industrial waste for the used product.

---

### Section 14: TRANSPORT INFORMATION

---

#### International regulation

UN number	3268
UN proper shipping name	SAFETY DEVICES, electrically initiated
Transport hazard class(es)	9
Subsidiary risk	-
Packing group	-
Marine pollutant	Not applicable
IBC Code	Not applicable

When transporting, confirm no damage to containers. Avoid handling violently or leaking wet. Load to prevent fall or falling down containers and take preventive measures of collapse.

---

### Section 15: REGULATORY INFORMATION

---

No information

---

### Section 16: OTHER INFORMATION

---

#### Reference

Information of TOKAI RIKAI CO., LTD.

NITE GHS classification (2016)

ACGIH, American Conference of Governmental Industrial Hygienists (2016) TLVs and BEIs.

#### [Disclaimer]

This SDS has been prepared on the basis of laws, regulations and information available at this time. It is user's responsibility to modify or update any contents in this SDS regarding information on hazardous properties and/or instruction for safe handling of the product when they become available. Precautionary measures in this SDS are only applicable for normal handling conditions and it is necessary to take appropriate additional measures to ensure safe handling which depend on your specific use conditions or situations.