

## SAFETY DATA SHEET

In accordance with ISO 11014: 2009 for Transport purpose

### Section 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### Product identifier

**Product name** Seat-belt pretensioner  
**SDS Number** PT-002-001

#### Manufacture/supplier

**Manufacture/supplier** THAI SEAT BELT CO., LTD.  
**Department in Charge** Quality Control Section  
**Address** 700/56 Amata Nakorn Industrial Estate, Bangna Trad Rd.,  
KM.57. T.Nongmaideang A.Muang, Chonburi 20000  
**Telephone number** (038)214705  
**Fax number** (038)214707  
**e-mail address**  
**Emergency telephone number** (038)214705

#### 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

Eye damage/irritation: Category 1  
Reproductive toxicity: Category 2  
Specific target organ toxicity (single exposure): Category 1 (central nervous system, blood system)  
Category 2 (respiratory)  
Specific target organ toxicity (single exposure): Category 3 (respiratory tract irritation, narcotic effects)  
Specific target organ toxicity (repeated exposure): Category 2 (blood system, kidney, respiratory)

##### Environmental Hazards

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

## Label Elements

### Pictogram

None

### Signal word

**Danger**

### Hazard Statements

Fire or projection hazard  
Causes serious eye damage  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of damaging fertility or the unborn child  
Causes damage to central nervous system, blood system  
May causes damage to respiratory  
May cause damage to blood system, kidney, respiratory 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.  
Avoid release to the environment.  
Wear protective gloves/protective clothing/eye protection/face protection.

[Emergency response]

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.  
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.  
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.

[Storage]

[Disposal]

Dispose of contents/ container in accordance with related laws and local/ regional regulations.

#### Other hazards

Gas generator may be activated by flame, high temperature, impact and static electricity, etc.  
Generates high temperature gases on activation.  
There is no possibility of entering chemicals to the human body from sealed gas generator.  
Chemicals might be taken through eyes, nose, and mouth when gas generator is damaged before actuation.  
There are possibilities of burns by actuation and laceration by scattered fragment of gas generator.  
There is no possibility of entering chemicals to the human body from sealed gas generator.  
See section 11 when gas generator is damaged before actuation.

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

Causes serious eye damage  
May cause respiratory irritation  
May cause drowsiness or dizziness  
Suspected of damaging fertility or the unborn child  
Causes damage to central nervous system, blood system  
May cause damage to respiratory  
May cause damage to blood system, kidney, respiratory through prolonged or repeated exposure

### Section 3: COMPOSITION/ INFORMATION ON INGREDIENTS

#### Substance/Mixture

Mixture

#### Compositions

##### 1. Squib Charge (Ignition Charge) (Total weight 30 mg or less)

| Chemical name/ Generic name | CAS number | Concentration (wt %) |
|-----------------------------|------------|----------------------|
| Zirconium                   | 7440-67-7  | 1.6 or less          |
| Basic Copper (II)           | 12158-75-7 |                      |
| Potassium Perchlorate       | 7778-74-7  |                      |
| Aluminum                    | 7429-90-5  |                      |

##### 2. Secondary Charge (Total weight 100 mg or less)

| Chemical name/ Generic name | CAS number | Concentration (wt %) |
|-----------------------------|------------|----------------------|
| Titanium Hydride            | 7704-98-5  | 5.2 or less          |
| Potassium Perchlorate       | 7778-74-7  |                      |

##### 3. Gas Generant (Smokeless Powder) (Total weight 1,800 mg or less)

###### Type 1

| Chemical name/ Generic name | CAS number | Concentration (wt %) |
|-----------------------------|------------|----------------------|
| Nitrocellulose              | 9004-70-0  | 93.2 or less         |
| Diphenylamine               | 122-39-4   |                      |
| Potassium Sulfate           | 7778-80-5  |                      |

## Type 2

| Chemical name/ Generic name | CAS number | Concentration (wt %) |
|-----------------------------|------------|----------------------|
| Nitrocellulose              | 9004-70-0  | 93.2 or less         |
| Diphenylamine               | 122-39-4   |                      |
| Potassium Sulfate           | 7778-80-5  |                      |
| Methyl Diphenylurea         | 13114-72-2 |                      |

Either Type 1 or Type 2 is used as Gas Generant

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## Section 4: FIRST-AID MEASURES

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### First aid procedures

|              |  |
|--------------|--|
| IF INHALED   | Remove victim to fresh air and keep at rest in a position comfortable for breathing.<br>Call a doctor/physician.<br>Give oxygen or artificial respiration if needed. |
| IF ON SKIN   | Rinse with plenty of water and soap.<br>Call a doctor/physician.   |
| IF IN EYES   | Immediately rinse cautiously with water for 15 - 20 minutes.<br>Remove contact lenses, if present and easy to do. Continue rinsing.<br>Call a doctor/physician.      |
| IF SWALLOWED | Immediately rinse cautiously with water for 15 - 20 minutes.<br>Remove contact lenses, if present and easy to do. Continue rinsing.<br>Call a doctor/physician.      |

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

Bring about the possibility of irritation to respiratory.  
Possibility of angiopathy.  
Possibility of serious damage of eyes (Diphenylamine)

### Protection of first-aiders

Wear appropriate eyes and skin protective equipment.

### Note to an attending physician

No information

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## Section 5: FIRE-FIGHTING MEASURES

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### Extinguishing media

#### Suitable extinguishing media

Water or other normal extinguish materials

#### Unsuitable extinguishing media

Not known

### Specific hazards arising from the chemical

In the event of fire, evacuate the area immediately and stay behind shield.  
Gases with stimulation, toxicity or corrosion might be emitted.  
It is effective of using large amount of water in order to extinguish a fire.  
However, keep clear the area in case of accidental explosion.  
Therefore, facility with automatic water sprinkler is recommended.

### Protective equipment and precautions for firefighters

Wear full protective equipment.

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## Section 6: ACCIDENTAL RELEASE MEASURES

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### Personal precautions

Wear appropriate protective equipment on work in order to prevent dust from clinging to skin or eyes.  
Work from windward area and evacuate people from leeward.  
Worker should wear appropriate protective equipment, and avoid contact to eyes and skin, and inhalation of dust. (Antidust mask approved by NIOSH/MSHA, goggle, heat resistance protective clothing which does not expose skin, impermeable gloves)

### Environmental precautions

Prevent the leakage to drain, soil, water sources. If the preparation releases into water sources, inform competent organs.

### Methods and materials for containment and cleaning up

Collect into conductive container as much as possible and dispose based on Explosives Control Law.

### Secondary disaster prevention measures

No information

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## Section 7: HANDLING AND STORAGE

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### Handling

|   |   |
|---|---|
| Technical measures                          | All propellant in gas generator cannot be taken out from sealed aluminum container. *Sealed gas generator will not ignite unless it is heated more than 170°C or set to pass an electric current. However, it might activate untimely with static electricity, radio wave or drop impact. And if retainer w/o shunt bar is used, possibility to happen unexpected deployment increases. |
| Precautions such as local/total ventilation | Toxic gases are produced on activation, therefore, ventilate well when the product is actuated.   |
| Precautions for safe handling               | Wash hands thoroughly after handling.   |
| Prevention of contact                       | Avoid flame, high temperature, impact and static electricity.   |

### Storage

|                                     |  |
|-------------------------------------|--|
| Technical measures                  | No information   |
| Incompatible materials and mixtures | Strong acid and strong bases which decompose aluminum container. |
| Conditions for safe storage         | Avoid direct sun and store at room temperature.                  |
| Packing material                    | Use designated container.  |

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## Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

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### Permissible concentration

#### Occupational Exposure Limits

|                       |   |
|-----------------------|---|
| ACGIH TLV-TWA (2016)  | 5 mg/m <sup>3</sup> (Zirconium and compounds, as Zr)<br>1 mg/m <sup>3</sup> (Aluminum metal and insoluble compounds)<br>(Respirable fraction) |
| ACGIH TLV-STEL (2016) | 10 mg/m <sup>3</sup> (Diphenylamine)<br>10 mg/m <sup>3</sup> (Zirconium and compounds, as Zr)   |

### Engineering controls

No information

### Personal protective equipment

|                          |   |
|--------------------------|---|
| Respiratory protection   | Wear mask.                                    |
| Hand protection          | Wear protective glove.                        |
| Eye protection           | Wear safety glasses or goggles.               |
| Skin and body protection | Wear antistatic clothes and conductive shoes. |

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## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

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|  |  |
|--|--|
| Appearance   | Form: Specific sealed unit ( φ 17mm×L35mm)   |
| (physical state, form and colour)                      | Colour: Silver   |
| Odour  | No odour at normal conditions  |
| Odour threshold  | Not applicable   |
| pH   | Not applicable   |
| Melting point/ freezing point                          | Not applicable   |
| Boiling point, initial boiling point and boiling range | Not applicable   |
| Flashpoint   | Not applicable   |
| Evaporation rate                                       | Not applicable   |
| Flammability   | Not applicable   |
| Upper/lower explosive limits                           | Not applicable   |
| Vapour pressure  | Not applicable   |
| Vapour density   | Not applicable   |
| Specific gravity                                       | Not applicable   |
| Solubility   | The solubility in water of the chemical materials inside the Sealed unit is as follows:<br>(a) Ignition charge Insoluble<br>(b) Secondary charge Soluble |

|   |                                   |           |
|---|-----------------------------------|-----------|
|   | (c) Smokeless powder              | Insoluble |
| <i>n</i> -octanol/water partition coefficient | Not applicable                    |           |
| Auto-ignition temperature                     | 200°C (DSC), 170°C (Krupp method) |           |
| Decomposition temperature                     | No information                    |           |
| Viscosity                                     | Not applicable                    |           |
| Other information                             | No information                    |           |

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## Section 10: STABILITY AND REACTIVITY

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|                                  |   |
|----------------------------------|---|
| Chemical stability               | Sealed gas generator is stable under normal storage and handling condition. |
| Hazardous reactions              | No hazardous reaction expected under normal handling.                       |
| Conditions to avoid              | Flame, high temperature, friction, impact static electricity                |
| Incompatible materials           | Avoid strong acid and strong bases which decompose aluminum container.      |
| Hazardous decomposition products | Gases and residue are produced on activation of gas generator.              |

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## Section 11: TOXICOLOGICAL INFORMATION

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### 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. |

#### Aluminum

|   |  |
|---|--|
| Specific target organ toxicity (single exposure):   | In humans, inhalation of this material (dust), may cause lung disorders such as pneumoconiosis (aluminum lung disease).  |
| Specific target organ toxicity (repeated exposure): | For humans, 1,142 people workers of aluminum and aluminum compound manufacturing in epidemiological studies (1975- 1981), at the exposure to high concentrations of dust (> 100 mg / m <sup>3</sup> - year as total dust) pulmonary function influence was seen, and small irregular nodules in the lower part of the lung have been reported in 7-8% by chest X-ray |

inspection.

#### 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. |

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## Section 12: ECOLOGICAL INFORMATION

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### 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  |

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### Section 13: DISPOSAL CONSIDERATIONS

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#### Remaining product

- Should be disposed at approved incinerator.
- Should not be thrown to river, or ocean dumping.
- Should not mix with other garbage or industrial discharge.

#### Contaminated containers and packaging

- Should be disposed as industrial discharge.

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### Section 14: TRANSPORT INFORMATION

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#### 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.

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### Section 15: REGULATORY INFORMATION

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No information

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**Section 16: OTHER INFORMATION**

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**Reference**

Information of **TOKAI RIKO 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.