

# **MATERIAL SAFETY DATA SHEET**

Document No : MSDS-01 Date of issue : 12.08.2014 Rev. : 01

## **GAS SPRING**

### **1. PRODUCT AND COMPANY PROFILE**

**Product Name : GAS SPRING**

**Company Profile : INSU TEKNİK A.S.**

Gürsu Organize Sanayi Bölgesi Prof.Dr.Oktay Sinanoğlu Cad. No:68/3

Gürsu-BURSA/ TURKEY

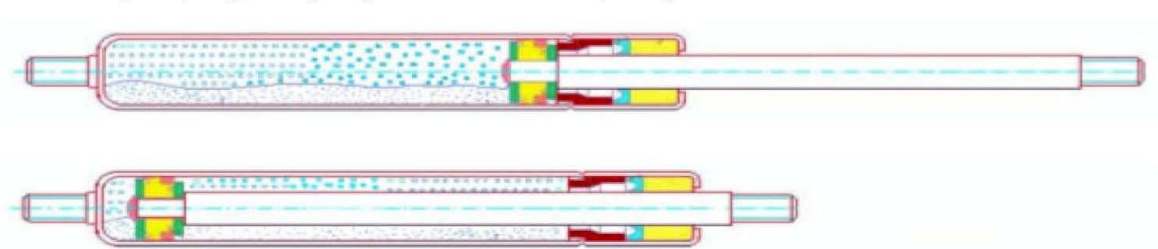
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### **2. PRODUCT CONTENT INFORMATION**

It is a closed system that consist of tube + piston rod + leakproof elements + oil + nitrogen gas.

Inside the gas spring, nitrogen gas is used.



### **Composition / Information on Ingredients**

**For Nitrogen Gas,**

Component : Nitrogen (N<sub>2</sub>), CAS Number : 7727-37-9, Concentration (Volume) : min 98,00 %

**For Oil,**

<b>Chemical Name</b>	<b>CAS NO</b>	<b>EC (EINECS) NO</b>	<b>%</b>	<b>Proportion Risk Class</b>
Mineral Oil	Mixture	-	>90	-
Zinc dialkyl dithiophosphate	68649-42-3	-	<0,50	R38 R41 R51/53

### **3. DANGER DESCRIPTIONS**

Inside gas spring compressed (colourless, scentless, inert, non-flaring) nitrogen is used.

Gas spring is to be used and stored under 80°C. Do not try to open because of high pressure.

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Oil, which is inside gas spring, has no harms under normal using conditions. It is non-flaring, but inflammable. It is not harmful to ecology.

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives.

**Physical/Chemical Hazards:** Not classified as dangerous.

**Human Health Hazards:** Under normal conditions of intended use, this product does not pose a risk to health. Excessive exposure may result in eye, skin or respiratory irritation. High-pressure injection under skin may cause serious damage. Smoke and steam, if inhaled a long period, can affect breathing even in regular temperature, inhalation could be a problem. Swallowing of product is dangerous.

**Environmental Hazards:** Not classified as dangerous for the environment. Not likely to be harmful to aquatic organisms.

## **4. FIRST AID**

If someone breaths the nitrogen gas inside gas spring i breathed, this person should be taken to clean area to take fresh air. If there is a problem in taking breath, artificial breath should be made immediately.

After that, he/she should get sym ptomatic cure.

### **For Oil;**

**Eye Contact:** Rinse opened eye for several minutes under running water. If irritation occurs, get medical assistance.

**Skin Contact:** Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency.

**Swallowing:** In case of contact with mouth, It should be washed with water. If swallowed, She/he should not throw up without remain permission of a doctor.

**Inhalation:** Not expected to be a problem. However, if respiratory irritation, dizziness, nausea, or unconsciousness occurs due to excessive vapor or mist exposure, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or mouth-to-mouth resuscitation.

**Advise to Doctor:** Treatment should in general be symptomatic and directed to relieving any effects.

## **5. FIGHT WITH FIRE**

Suitable Fire Extinguisher / Extinguish Method : Inside the tube parts of gas spring, there is oil and compressed nitrogen gas. The material, which begins to burn, should be interfered with foam and dry chemical powder fire extinguisher devices. Sand, earth and fire extinguishers with carbondioxide are used only for small fires. During fire, pressure increases with increasing temperature, and the tube can be teared. Gas springs affected from fire should be cooled with water from a safe distance. In addition, to prevent gas compression, water should be contacted into fuse part of gas spring.

Non-suitable Fire Extinguisher / Extinguish Method : None

Harmful Materials Appearing Because of Fire : None

Protective Equipment for Fire-Fight : Fire fight team should use breathing protective device and flamm durable clothes.

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## **For Oil;**

**Extinguishing Media and Fire Fighting Procedure:** Carbon dioxide, foam, dry chemical and water fog. Carbon dioxide, Clean Agents, sand or earth may be used for small fires only. Water or foam may cause frothing. Use water to keep fire exposed containers cool. Water spray may be used to flush spills away from exposure. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

**Unsuitable Extinguishing Media and Fire Fighting Procedure:** Do not use water in a jet.

**Combustion Products:** Fumes, smoke, carbon monoxide, sulfur oxides, aldehydes and other decomposition products, in the case of incomplete combustion.

**Protective Equipment:** For fires in enclosed areas, fire fighters must use self-contained breathing apparatus.

## **6. PRECAUTIONS FOR ACCIDENTAL GAS AND OIL EXPOSURES**

### **For Nitrogen Gas,;**

#### **Personel Measures,**

Gas leaking gas spring should be taken safe area.

#### **Environmental Measures**

Do not try to repair gas spring, contact to INSU TEKNIK A.S.

#### **Cleaning Method**

Effected area should be ventilated.

### **For Oil,**

**Personal Precautions:** No action shall be taken involving any personal risk or without suitable training. Do not touch or walk through spilled material. Provide adequate ventilation. Gloves and clothes protecting skin.

**Environmental Precautions:** If emergency personnel are unavailable, contain spilled material. Avoid contact of spilled material with soil and prevent runoff entering surface waterways.

**Clean up Methods-Small Spillages:** To minimize soil and groundwater contamination, absorb liquid with sand earth or other recommended absorbent material, as soon as possible. Sweep up and remove to a suitable, clearly marked container for disposal in accordance with local regulations. Do not disperse using water.

**Clean up Methods-Large Spillages:** Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Dispose of as for small spills.

**Water Spillages:** Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

## **7. USAGE AND STORAGE**

### **Usage**

Gas spring are able to work between -20°C , +80°C . During assembly, each two ends, should be parallel.

Strained connection and work decrease its life time. Axle should be placed down during assembly. Tube

part of gas spring should not be crushed or harmed with a cutting device definitely. Also the axle should

not get any impact which can cause deformation. Do not try to open more while gas spring is in opened

position. Do not use gas spring as a safe tool in any system.

### **Storage**

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Gas spring should be stored as the axle part should be placed down to prevent pressure losses, but do not store gas spring more than one year. On gas springs, which are not used for a long time, there can be adhesive effect like in first usage. In that situation, more force should be used, and this effect will end when gas spring begins to work.

## **For Oil;**

**Usage:** Ventilation recommended. Standard hygienic environment should be provided. Avoid prolonged or repeated contact with skin and eyes. Wash thoroughly after handling.

**Handling:** High pressure injection under the skin may occur due to the rupture of pressurized lines. Always seek medical attention. No special precautions are necessary beyond normal good hygiene practices.

**Storage:** Keep container tightly closed, Keep container in a cool, well-ventilated area. Avoid overheating and freezing. Recommended storage temperature should be between (+5), (+40)°C.

**Special Usage:** There is ignition risk if the product contact with hot surfaces. Cutting, welding, soldering should not be applied for empty tanks, because there is possibility that they may contain product vapor.

## **8. EXPOSURE CONTROL / PERSONAL PROTECTION**

No danger in contact with gas spring

### **For Nitrogen Gas,**

#### **Professional Exposure Limit**

Ventilation should be made so that oxygen content in air should not be lower than %19,5

#### **Professional Exposure Controls**

Nitrogen is not harmful, but in high concentrations, it acts like a basic stifling gas. It should not be breathed with willingly.

#### **Protection of Breathe System**

If nitrogen concentration in air is higher than necessary oxygen content for breathing. Respirator with tube should be used.

#### **Protection of Hands**

Gloves should be used.

#### **Eye Protection**

Appropriate work clothes and steel-edged shoes should be used.

#### **Environmental Exposure Controls**

Nitrogen is a gas which is %78 content in atmospheric air, and no harmful effects to environment.

*For Oil inside gas spring,*

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## Exposure Limits

Macro Name	Duration	Limit	Unit Laws
Mineral Oil Mist	TWA	5 mg/m <sup>3</sup>	ACGIH
	STEL	10 mg/m <sup>3</sup>	ACGIH

### Exposure Controls:

Respiratory Protection: No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation.

Hand Protection: No hand protection is ordinarily required under normal conditions of use.

Eye Protection: Wear safety glasses or full face shield if splashes are likely to occur.

Skin Protection: No skin protection is ordinarily required under normal conditions of use. Minimize all forms of skin contact. Wear coveralls to protect clothing and wash them regularly.

Special Hygiene Controls: After using the product, take appropriate personal hygiene controls like washing hands before eating, drinking and smoking. Apply hygiene measures in the workplace.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Gas spring surface roughness value : Ra = max.20μ

Paint thickness : 40μ -80μ

Corrosion endurance : 200 hours

### For Oil:

Color N/D

Appearance Liquid form at ambient temperatures

Odor Characteristic

pH Value N/A

Vapor Pressure(kPa) -

Boiling Point/Boiling Range(°C) 400-500

Solubility in Water Negligible

Density (g/cm<sup>3</sup>, 20°C) 0,895

Flash Point (°C) 190

Flammable Limits-Upper N/D

Auto Ignition Temperature (°C) N/D

Kinematic Viscosity (cSt, 40°C) 37,0

Evaporation Rate N/D

Vapor Density (Air=1) N/D

Partition co-efficient, n-octanol/water N/D

Pour Point (°C) -40

### For Nitrogen Gas,

Form : Compressed gas

Color : Colorless gas

Odor : No odor warning properties

Molecular weight : 28,01g/mol

Relative vapor density : 0,967 (Air=1)

Density : 1,170 Kg/m<sup>3</sup> (15 °C, 1bar)

Specific volume : 13,80 ft<sup>3</sup>/lb (0,8615 m<sup>3</sup>/kg) at 70 °F (21 °C)

Boiling point/range : -195,8 °C (-321 °F)

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Critical temperature : -147 °C (-233 °F)

Melting point/range : -209,86 °C (-346 °F)

Water solubility : 20 mg/l

## **10. STABILITY AND REACTIVITY**

### **For Nitrogen Gas.**

Situation to be avoided

Inner, stable in normal conditions.

### **Materials to be avoided**

None

### **Dangerous decomposition products**

None

### **For Oil.**

**Stability:** Stable

**Conditions to Avoid:** Extremes of temperature and direct sunlight.

**Materials to Avoid:** Strong oxidizing agents.

**Hazardous Decomposition Products:** Hazardous decomposition products are not expected to form during normal storage.

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## **11. TOXICOLOGICAL INFORMATIONS**

### **For Nitrogen Gas,**

Nitrogen is not toxic, but it shows its toxic effect in high concentrations as a basic stifling gas.

Suffocating symptoms: Fast and hard breathing, fast tire, nausea/vomit and death after loss of conscious.

### **For Oil,**

**Basis for Assessment:** Toxicological data are not available for this product. Information given is based on data on the components and the toxicology of similar products.

#### **Acute Toxicity:**

#### **Route of Exposure Conclusion / Remarks**

##### **Inhalation**

Toxicity (Rat): LC50 > 5000 mg/m<sup>3</sup> Minimally Toxic. Based on assessment of the components.

Irritation: No end point data. Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.

##### **Ingestion**

Toxicity (Rat): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.

##### **Skin**

Toxicity (Rabbit): LD50 > 2000 mg/kg Minimally Toxic. Based on test data for structurally similar materials.

Irritation (Rabbit): No data available Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.

##### **Eye**

Irritation (Rabbit): No data available May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

**Chronic/Other Effects:** Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. All used oil should be handle with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

**Carcinogenicity:** No carcinogenic data available for this product.

**Mutagenicity:** Not considered a mutagenic hazard.

Additional information may be available upon request.

## **12. ECOLOGICAL INFORMATIONS**

### **For Nitrogen Gas,**

Nitrogen is made of by compressing and decomposing the air. It has no harmful effect on ecologic balance.

#### **Ecotoxicity**

None

#### **Mobility**

None

#### **Permanence and Decomposibility**

None

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## Bioaccumulation Potential

None

## Other Negative Effects

None

## For Oil,

**Basis for Assessment:** Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

**Acute Toxicity:** Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 >100 mg/l (to aquatic organisms) (LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract). Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

**Mobility:** Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

**Persistence/degradability:** Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

**Bioaccumulation:** Contains components with the potential to bioaccumulate..  
Mineral oil component - Has a potential to accumulate as biological.

## 13. REMOVE INFORMATIONS

Used gas spring are collected to be given to scrap-iron dealer.


## For Oil;

**Waste Disposal:** Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

**Product Disposal:** As for waste disposal.

**Container Disposal:** Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations.

## 14. TRANSPORTING INFORMATION

<b>Hazchem Class 2.2</b>															
 <p style="text-align: center;"><b>Hazchem Class: 2.2</b></p> <p>Emergency action code for this hazard class 2.2 UN Number: 3164</p> <p style="text-align: center; font-size: 1.5em;"><b>2T</b></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Material:</td> <td>Articles, pressurized pneumatic or hydraulic containing non-flammable gas</td> </tr> <tr> <td>Hazard Class:</td> <td>2.2</td> </tr> <tr> <td>UN Number:</td> <td>UN3164</td> </tr> <tr> <td>Label Codes:</td> <td>2.2</td> </tr> <tr> <td>Exceptions:</td> <td>306</td> </tr> <tr> <td>Non bulk:</td> <td>302, 304</td> </tr> <tr> <td>Bulk:</td> <td>None</td> </tr> </table>	Material:	Articles, pressurized pneumatic or hydraulic containing non-flammable gas	Hazard Class:	2.2	UN Number:	UN3164	Label Codes:	2.2	Exceptions:	306	Non bulk:	302, 304	Bulk:	None
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	Passenger aircraft rail:	No limit
	Cargo aircraft only:	No limit
	Location:	A
	sku:	HZ005

**For Oil;**

**IATA:** Not regulated by IATA.

**ADNR:** Not regulated by ADNR.

**RID/ADR:** Not regulated by RID/ADR

**IMDG:** Not regulated by IMDG.

## **15. INFORMATION RELATED WITH LAWS**

### **Law Risk Definitions**

None

### **Law Security Definitions**

None

**For Oil;**

Material is not dangerous as defined by the EU Dangerous Substances/Preparations Directives

Prepared according to Annex II of EC Regulation 1907/2006.

**EC Classification:** Not classified as hazardous according to EU criteria.

**EC Symbols:** None.

**EC Risk Phrases:** None.

**EC Safety Phrases:** S 24/25, S 29/56, S 36/37/39, S61

## **16. OTHER INFORMATIONS**

All informations are prepared with the help of reachable sources to give informations about gas spring.

**For Oil;**

**R phrases in Section 2:**

**R38** Irritating to skin

**R41** Risk of serious damage to eyes

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

**S phrases in Section 15:**

**S 24/25** Avoid any inhalation, contact with skin and eyes. Wear suitable protective clothing and gloves

**S 29/56** Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point

**S 36/37/39** Wear suitable protective clothing, gloves and eye/face protection

**S 61** Avoid release to the environment. Refer to special instructions/safety data sheet

**N/D Not Determined, N/A = Not Applicable**

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