



Material Safety Data Sheet

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1. PRODUCT AND COMPANY PROFILE

Product Name : GAS SPRING

Company Profile MS MOTION OTM. A.Ş.
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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. While opening oil is used to break the cover mation.



Composition / Information on Ingredients

For Nitrogen Gas,

Component : Nitrogen (N₂), CAS Number : 7727-37-9, Concentration (Volume) : 99,99 %

For Oil,

Composition : Solvent refined paraffinic base oils and additives.

<u>Hazardous components</u>	<u>CAS No.</u>	<u>EC Hazard Symbol.</u>	<u>EC Risk Phrases.</u>	<u>Concentration</u>
Mineral Oil		N	R22/52	80-90
Additives :				
Methacrylates		N	R51/53	
Antiwear, anticorrosion			R36/37/38	

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.
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.

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.

Oil inside gas spring has not acute danger. If someone breaths it and gets dizziness or nauea, he/she should be taken into fresh air. If these continue, he/she should be taken to hospital.

If oil contacts with skin, the clothes with oil should be taken off, and skin should be washed with soap and water. If irritation continues, he/she should be taken to hospital. If skin gets contact with spraying machine directly, he/she should be taken to hospital immediately.

If oil contacts with eyes, eyes should be washed with water, If irritation continues, he/she should be taken to hospital.

If someone swallows oil, his/her mouth should be rinsed with water, and should be taken to hospital. He/she shouldn't be forced to vomit.

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.

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

Cleaning Method

Effected area should be ventilated.

For Oil,

Personel Measures,

Contact between eyes/skin and oil laeking gas spring should be obstructed.

Environmental Measures

Do not let to flow sewer system by making a barrier with send, earth or any appropriate material.

Cleaning Method

Oil should be suckled into sand or earth, filled into container with warning label, and removed according to local laws.

7. USAGE AND STORAGE

Usage

Gas spring are able to work between -20°C , $+80^{\circ}\text{C}$. 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 definetely. 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

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.

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.

Portection 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,

Exposure Limits

Macro Name	Duration	Limit	Unit	Laws
Oil Mist, Mineral	TWA	5	mg/m ³	TLV/ACGIH
	STEL	10	mg/m ³	TLV/ACGIH

Wash clothes periodically.

9. PHYSICAL AND CHEMICAL PROPERTIES

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

Dye thickness : 30μ - 40μ

Corrosion endurance : 250 hours

For Oil,Density at 15°C kg / m³ : 0,887

Flash point : 140°C

Viscosity (40°C , cSt.) : 68

Pour point : -45°C

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/m³ (15 °C, 1bar)Specific volume : 13,80 ft³/lb (0,8615 m³/kg) at 70 °F (21 °C)

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

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**

Iner, stable in normal conditions.

Materials to be avoided

None

Dangerous decomposition products

None

For Oil,**Stability**

Stable

Situatiaon to be prevented

High temparatures and direct sunlights

Materials to be prevented

Do not contact with powerful oxydan materials

Harmful decomposition productsIn normal storage conditions, there won't be produced any dangerous products.

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,

No toxicological informations available for this type of oil. Informations below are for similar types of oil .

Acute poisonness - Mouth contact : LD50 > 2000mg/kg

Acute poisonness - Skin contact : LD50 > 2000mg/kg

Acute poisonness - Breathing : No danger in normal usage conditions

Eye irritation Intensity : Expected to be slightly irritant.

Skin irritation intensity : Repeated skin contact may cause irritation.

Skin sensitivity : None

Mutagenic effects : No danger

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

Bioaccumulation Potential

None

Other Negative Effects

None

For Oil,

Basis for assessment

Ecotoxicological data have not been determined specifically for this product. The information given below is based on a knowledge of the components and the ecotoxicology of similar products.

Mobility

Floats on water. Adsorbs to soil and is not mobile.

Degradability

Not readily biodegradable. The mineral oil is inherently biodegradable, but the product contains components that are persistent in the environment.

Bioaccumulation

Contains components with the potential to bioaccumulate.

Acute toxicity - fish

Expected to be slightly toxic, 10 < LC/EC/IC 50 > = 100 mg/l.

Acute toxicity - invertebrates

Expected to be slightly toxic, 10 < LC/EC/IC 50 > = 100 mg/l.

Acute toxicity - algae

Expected to be slightly toxic, 10 < LC/EC/IC 50 > = 100 mg/l.

Sewage Treatment

Expected to be non toxic, 10 < LC/EC/IC 50 > = 100 mg/l.

Other information

Poorly soluble in water, LC/EC/IC 50 expressed as the nominal amount of the product required to prepare aqueous test extract. May cause physical fouling of aquatic organisms.

13. REMOVE INFORMATIONS

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

14. TRANSPORTING INFORMATION

Definition No	Danger Class	Danger Class Code	Label Information
UN 3164	2	6A	2,2

15. INFORMATION RELATED WITH LAWS

Law Risk Definitions

None

Law Security Definitions

None

16. OTHER INFORMATIONS

All information is prepared with the help of reliable sources to give information about gas springs.