

## MATERIAL SAFETY DATA SHEET

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

- 1.1 Identification of the substance or preparation
- 1.1.1 Commercial Product Name  
Hydro pneumatic piston accumulator with compressed nitrogen inside. (Accumulator)
- 1.2 Use of the Substance / Preparation
- 1.2.1 Expressed in writing  
-
- 1.3 Company / undertaking identification
- 1.3.1 Supplier Hydroll Oy
- 1.3.2 Contact information
- |                          |                            |
|--------------------------|----------------------------|
| Street address           | Lohkarekuja 6              |
| Postcode and post office | FIN-62100 LAPUA<br>Finland |
| P.O.Box                  | P.O.Box 12                 |
| Postcode and post office | FIN-62100 LAPUA<br>Finland |
| Telephone                | +358 (0)20 765 7900        |
| Telefax                  | +358 (0)20 765 7901        |
| Business ID              | 1458247-8                  |
| Email                    | info@hydroll.com           |

### 2. HAZARDS IDENTIFICATION

**EMERGENCY OVERVIEW:** This accumulator is a cylinder containing nitrogen, a colorless inert gas under pressure ranging between approximately 10 to 280 bar at 20° celcius.

**Do not rupture, open or disassemble this accumulator.**

**Do not expose the accumulator to direct flame or heat.**

**Avoid any eye, skin or clothing contact with any gas venting from this accumulator.**

#### INGESTION

- Not an anticipated route of entry.

#### INHALATION

- High concentration can cause suffocation. Symptoms can be lost of mobility / consciousness / death is imminent after losing consciousness.  
Suffocation can happen without advance warning.  
Use a breathing device and move a victim to fresh air.  
Keep the victim warm and rest. If not breathing, give artificial respiration.  
Call a physician.

#### SKIN CONTACT

- Do not expose skin to venting gas from this accumulator which can cause burns and blisters.

#### EYE CONTACT

- May cause cryogenic burns if exposed to venting gas

#### DELAYED EFFECTS

- None expected

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1	Hazardous components		
3.1.1	3.1.2	3.1.3	3.1.4
CAS/EC and Reg.number	Chemical name and substance	Concentration	Classification
7727-37-9	Nitrogen, N <sub>2</sub>	> 99,5 %	A

### 4. FIRST AID MEASURES

\*\* if any of the symptoms persist, seek medical attention immediately \*\*

#### 4.1 INGESTION

- Not an anticipated route of entry.

#### 4.2 INHALATION

- Use a breathing device and move a victim to fresh air.  
Keep the victim warm and rest. If not breathing, give artificial respiration.  
Contact a physician immediately.

#### 4.3 SKIN CONTACT

- Warm skin by flooding or soaking with warm water. Do not use hot water.

#### 4.4 EYE CONTACT

- Flood eyes with warm water. Contact a physician immediately.

#### 4.5 ADVICE TP PHYSICIAN

- Treat according to symptoms present.

### 5. FIRE-FIGHTING MEASURES ( TOKEVA T2b, compressed nitrogen)

#### 5.1 Suitable extinguishing media

- Not flammable. Use extinguishing media appropriate for the surrounding area.

#### 5.2 Extinguishing media which must not be used for safety reasons

-

#### 5.3 Specific hazards

-

#### 5.4 Special protective equipment for firefighters

-

#### 5.5 Specific methods

- Accumulators exposed to high heat or flame may vent rapidly.

### 6. ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions

- Evacuate the area. Use oxygen (breathing) device if possible.  
Allow accumulator to vent until the gas has escaped. Do not attempt to stop the gas from venting from accumulator. Do not breathe gas. Avoid contact with skin, eyes and clothing.

#### 6.2 Environmental precautions

- Open any ventilation, doors, windows.

#### 6.3 Further information

## 7. HANDLING AND STORAGE

### 7.1. Handling

Always wear recommended personal protective equipment.

Keep the protective cap attached always when accumulator is not in use or when it is shifted.

Prevent the accumulator from falling by attaching it to the wall or a accumulator cart. Keep the valve closed always, when accumulator is not in use. Do not rupture the accumulator.

### 7.2. Storage

Storage the accumulators in well ventilated space away from heat- and inflammation sources (under 50 °C). Label the storage with appropriate warning signs.

Do not storage accumulators outside, unless accumulators are prepared and secured from oil-side with airtight plug.

### 7.3. Specific use(s)

Take care that there is efficient ventilation in working areas.

Observe the oxygen level in working areas.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1. Exposure Limit Values

#### 8.1.2. Other information on limit values

-

### 8.2. Exposure controls

#### 8.2.1. Occupational exposure controls

- Good ventilation in place of usage

#### 8.2.1.1. Respiratory protection

- Good ventilation in place of usage

#### 8.2.1.2. Hand protection

- Protective gloves

#### 8.2.1.3. Eye protection

- Safety glasses are adequate for all users

#### 8.2.1.4. Skin and body protection

- Normal clothing is sufficient

#### 8.2.2. Environmental exposure controls

- General ventilation is sufficient to dissipate gas, should it be released

## 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	General Information (appearance, odour)	
	Colourless, odourless	
9.2	Important Health Safety and Environmental Information	
9.2.1	pH	-
9.2.2	Boiling point / range	-196°C
9.2.3	Flash point	-
9.2.4	Flammability (solid, gas)	-
9.2.5	Explosive properties	
9.2.5.1	Lower explosion limit	-
9.2.5.2	Upper explosion limit	-
9.2.6	Oxidising properties	-
9.2.7	Vapour pressure	-
9.2.8	Relative density	0.97 (air = 1)
9.2.9	Solubility	
9.2.9.1	Water solubility	20 mg/l
9.2.9.2	Fat solubility (solvent – oil to be specified)	-
9.2.10	Partition coefficient (n-octanol/water)	-
9.2.11	Viscosity	-
9.2.12	Vapour density	-
9.2.13	Evaporation rate	-
9.3	Other information	

## 10. STABILITY AND REACTIVITY

10.1	Conditions to avoid	
	- Avoid direct heat and pressure.	
10.2	Materials to avoid	
	-	
10.3	Hazardous decomposition products	
	-	

## 11. TOXICOLOGICAL INFORMATION

11.1	Acute toxicity	
	-	
11.2	Primary irritation	
	-	
11.3	Sensitisation	
	-	
11.4	Subacute, subchronic and prolonged toxicity	
	-	
11.5	Human experience	
	-	
11.6	Other information of acute toxicity	
	- Simple asphyxiant	

## 12. ECOLOGICAL INFORMATION

- 12.1 Ecotoxicity
  - 12.1.1 Aquatic toxicity
    - No ecological effects expected.
  - 12.1.2 Toxicity to other organisms
    -
- 12.2 Mobility
  -

## 13. DISPOSAL CONSIDERATIONS

- Empty slowly in open-air or return to supplier.

## 14. TRANSPORT INFORMATION

14.1	UN-No	3164
14.2	Packaging group	-
14.3	Land transport	ADR 2.2
	Sea transport	IMO 2.2
14.3.1	Class	2
14.3.2	Risk No.	20
	ADR-RID-Labels	2.2



14.3.3	Description of the goods	Articles, Pressurized, Pneumatic
14.3.4	Further Information	Avoid transporting in vehicles, with no separate trunk space. Make sure, that the driver knows the possible dangers and knows what to do in accident- and danger situation. Before transporting the accumulators, make sure that they are steadily attached and the accumulator valve is closed and not leaking.
14.3.5	<b><u>Special provision applied in transport when products meet the requirements</u></b>	ADR - special provision 594 IMDG - special provision 283 IATA (DGR) - special provision A114 (283)

## 15. REGULATORY INFORMATION

- 15.1 Information on the warning label
  - 15.1.1 Letter code of the warning symbol and indications of danger for the preparation
    -
  - 15.1.2 R phrase(s)
    -
  - 15.1.3 R phrase(s)
    - S7/9 Keep container tightly closed and in a well-ventilated place.
  - 15.1.4 Special regulations on certain preparations
    -
  - 15.1.5 Special Safety Assessment has been carried out for the substance
    -
- 15.2 National regulatory information:
  -

## 16. OTHER INFORMATION

- 16.1 Training advice
  -
- 16.2 Recommended restrictions
  - Before using this product in new processes or experiments, should thorough composition compatibility and security assessing performed.
- 16.3 Additional information available from:
  - Sarlin Oy, telephone +358 (0)10 550 4505 (compressed nitrogen)
  - Hydroll Oy, telephone +358 (0)20 765 7900 (accumulators)
- 16.4 Literary reference
  1. Pyötsilä, J. Kemikaalilaki 6. painos, Chemas Oy Vol, 1&2, 2005.
  2. Handbook of Compressed Gases, 4. edition, Kluwer Academic Publishers, 1999.
  3. Nikunen, E., Leinonen, R., Kemiläinen, B. & Kultamaa, A 2000. Environmental Properties of Chemicals, 2 rev. edition, Edita Ltd. Vol 1&2.
  4. Virtanen, L., Miettinen-Bellevergue, S., Suominen M, Häkkinen A, (Toim.) Vaarallisten aineiden kuljetus tiellä 2009. Edita Publishing Oy.
  5. EIGA; European Industrial Gases Association.
  6. HTP-arvot 2007, Helsinki, 2007. Sosiaali- ja terveysministeriön julkaisuja 2007:4.
  7. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR 2013)
  8. IMDG Code, 2010 Edition Amdt 35-10
  9. DGR 54th edition (IATA)

Current issue date: 18.10.2012

Previous issue: 15.3.2012

Changes to MSDS from previous issue date are due to following:

- Firetests has been conducted to accumulators on 24.11.2011 in EMERGENCY SERVICES COLLEGE in Kuopio, Finland.
- IMO-code has been updated for transportation 18.10.2012
- Special provisions has been updated for Transportation 18.10.2012

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