SAFETY DATA SHEET AZOGEN (NITROGEN 95% HYDROGEN 5%)
Code: 484200 / 484200-2

Material safety data sheet according regulation (EU) 2015/830
Version 4 – Date: 27th May, 2019 (replaces version 3 – 03/2017)

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Commercial name	AZOGEN
Our code	HRD484200 / HRD484200-2
Chemical description	Nitrogen 95%, Hydrogen 5%
	Chemical formula: $N_2 + H_2$

1.2 Relevant identified uses of substance or mixture and uses advised against

Industrial sector	Refrigeration, air-conditioning and Automotive
Relevant identified uses	Refrigerant gas for refrigeration and air-conditioners systems
Application	Industrial and professional.

1.3 Details of the supplier of the safety data sheet

MAX-MAR Marcin Burzynski
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ul Wojska Polskiego 190
Telephone: +48 735 969 728
E-mail: biuro@max-mar.com

1.4 Emergency telephone number

MAX-MAR **+48 603 22 88 77 8.30-15:00**

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 (CLP)

Flam. Gas 1 (H220)
Press. Gas (H280)

2.2 Label elements

Dangerous pictogram

GHS04

Signal word	Warning	
Hazard statements (H)	H280:	Contains gas under pressure; may explode if heated
Precautionary statements (P)	P403:	Store in a well ventilated place

2.3 Other hazards

Vapours are heavier than air and can cause rapid suffocation by reducing oxygen available for breathing.
Contact with liquid can cause frostbite and severe damage to the eyes.

3. Composition/information on ingredients

3.1 Substances

Substance name	%	CAS No.	EC No.	Index No.	REACH No.	Classification Reg. (CE) n. 1272/2008 (CLP) and Directive 67/548/EEC
Nitrogen	95%	7727-37-9	231-783-9	----------	*	Not classified (DSD/DPD) Press. Gas (H280)
Hydrogen	5%	133-74-0	215-605-7	001-001-00-9	*	F+; R12 Flam. Gas 1 (H220) Press. Gas (H280)

* Listed in Annex IV / V REACH, exempted from registration.

For more information, see sections 8, 11, 12 and 16.

4. First aid measures

General information: If the person is unconscious, place it in the recovery position and get immediately medical attention. Do not give anything to an unconscious person. If breathing is irregular, give oxygen. If breathing stopped, administer artificial respiration. If symptoms persist, call a physician.
Note to physician: Do not give adrenaline-ephedrine or similar drugs group.

4.1 Description of first aid measures

Inhalation Remove patience from exposure to fresh air. Administer oxygen if necessary. Obtain immediate medical attention.
Skin contact Adverse effects not expected from this product.
Eye contact Adverse effects not expected from this product.
Ingestion Adverse effects not expected from this product.

4.2 Most important symptoms and effects, both acute and delayed

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Water spray, alcohol-resistant foam, dry chemical or CO2
No suitable extinguishing media None to our knowledge.

5.2 Special hazards arising from the substance or mixture

The product is not flammable.

Specific hazards Contents under pressure.
On heating: heating will cause a rise in pressure with a risk of bursting. Toxic and corrosive vapours are released.
Cool down the containers exposed to heat with a water spray.
Vapours are heavier than air and can cause rapid suffocation by reducing oxygen available for breathing.

5.3 Advice for firefighters

Wear self-contained positive pressure breathing apparatus (SCBA) and protective suit.
Avoid contact with skin and eyes.
Do not breathe gas/fumes/vapour.

Other information

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
For more information, see section 10.

6. Accidental release measure

6.1 Personal precautions, protective equipment and emergency procedures

Immediately contact emergency personnel.
Immediately evacuate personnel to safe areas. Unprotected persons must be kept away.
Wear personal protective equipment refer to section 8 "Exposure controls/personal protection".

Remove all sources of ignition.
Avoid contact with skin (possible frostbite).
Ventilate the area/local. In case of insufficient ventilation, wear self-contained breathing apparatus.

6.2 Environmental precautions

Do not allow product to spread into the environment.
Avoid spillage and prevent possible losses.

6.3 Methods and material for containment and cleaning up

Ventilate / aerate the area or local.

6.4 Reference to other sections

For further on personal protection, refer to section 8 and 13.

7. Handling and storage

7.1 Precautions for safe handling

Technical measures	Handle and open container with care. Caution when opening, pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50° C (122 °F). Do not spray on a naked flame or any incandescent material. Do not use in area without adequate ventilation. Do not pierce or burn, even after use. Follow the general precautions for handling, storing, and using compressed gases.
Industrial hygiene	Ensure adequate ventilation of the working area. Do not drink, eat or smoke in the working area.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers
Keep containers tightly closed in a dry, cool and well-ventilated place, away from any ignition or heat sources.
Store in original container. Protect from sunlight and do not expose to temperatures exceeding 50° C (122 °F).

7.3 Specific end use(s)

For professional and industrial use only.

8. Exposure controls/personal protection

8.1 Control parameters

OEL (Occupational Exposure Limit): No data available
DNEL (Derived No Effect Level): No data available
PNEC (Predicted No Effect Concentration): No data available

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Ensure and provide adequate air ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Consider a work permit system e.g. for maintenance activities.

8.2.2 Individual protection measures, such as personal protective equipment

a) Eye/face protection	Safety glasses with side-shields (according to directive EN 166).
b) Skin protection	
i) Hand protection	Thermal-protective gloves resistant to chemical products (EN 374). The penetration time of the gloves must be greater than the period of expected use. Gloves should be replaced immediately if they show signs of wear or deterioration.
ii) Other	Wear safety shoes while handling containers. Apron or protective clothing are not necessary.
c) Respiratory protection	Mask filter for gases and vapours (EN141). To obtain an adequate protection, filter class you should choose according to the type and concentration of contaminants. The breathing apparatus with filters do not operate satisfactorily when the air contains high concentrations of vapours. In case of insufficient ventilation, wear self-contained breathing apparatus (EN529).

8.2.3. Environmental exposure controls

Handling in accordance with good industrial hygiene and safety practice. Prevent spillage or leakage of the product in watercourse or sewers (explosion danger). Avoid air emissions. See section 7 and 13.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

a)	**Appearance**	Compressed gas
	Colour	H2: Colourless N2: Colourless
b)	**Odour**	H2: Odourless N2: Odourless gas
d)	**pH**	Not applicable to gases and gas mixtures
e)	**Melting point**	Not applicable to gases and gas mixtures
f)	**Initial boiling point**	Not applicable to gases and gas mixtures
g)	**Flash point**	Not applicable to gases and gas mixtures
h)	**Evaporation rate**	Not applicable to gases and gas mixtures
i)	**Flammability (solid, liquid)**	Not flammable
j)	**Upper/Lower flammability**	n.a.
k)	**Vapour pressure**	n.a.
l)	**Vapour density**	0,94 (by calculation) @ 15 °C (59 °F)
m)	**Relative density**	n.d.a.
n)	**Solubility** (in the water)	n.d.a.
o)	**Partition coefficient: n-Octanol/water**	n.a.
r)	**Viscosity**	n.d.a.
s)	**Explosive properties**	n.d.a.

9.2 Other information

Critical temperature	- 146,95 °C
Molecular mass	28 g/mol.

10. Stability and reactivity

10.1 Reactivity

Stable under normal handling and storage conditions.

10.2 Chemical stability

Stable under normal handling and storage conditions.

10.3 Possibility of hazardous reactions

This product is non-reactive under normal handling and storage conditions.

10.4 Conditions to avoid

Contains under pressure, may explode if heated.
Protect from sunlight and do not expose to temperatures exceeding 50 °C.
Keep away from heat, sparks, open flame or other sources of ignition. Do not smoke.
Do not pierce or burn, even after use.
Do not spray on a naked flame or any incandescent material.

10.5 Incompatible materials

No reaction with common materials in dry or wet conditions.

10.6 Hazardous decomposition products

No hazardous decomposition under normal conditions.

11. Toxicological information

11.1 Information on toxicological effects

a) Acute toxicity	Based on available data, the classification criteria are not met.
b) Skin corrosion/irritation	Based on available data, the classification criteria are not met.
c) Serious eye damage/irritation	Based on available data, the classification criteria are not met.
d) Respiratory sensitisation	Based on available data, the classification criteria are not met.
e) Germ cell mutagenicity	Based on available data, the classification criteria are not met.
f) Carcinogenicity	Based on available data, the classification criteria are not met.
j) Aspiration hazard	Based on available data, the classification criteria are not met.

12. Ecological information

12.1 Toxicity

No ecological damage caused by this product.

Fish	CL50 96 h (mg/l): No data available
Aquatic invertebrates	EC50 48 h (mg/l): No data available
Algae	EC50 72 h (mg/l): No data available

12.2 Persistence and degradability

No ecological damage caused by this product.

12.3 Bioaccumulative potential

No ecological damage caused by this product.

12.4 Mobility in soil

No ecological damage caused by this product.

12.5 Results of PBT and vPvB assessment

This product does not contain any substances classified as PBT or vPvB.

12.6 Other adverse effects

Ozone Depletion Potential	ODP (R-11=1) = 0
Global Warming Potential	GWP (CO2=1) = 0

13. Disposal consideration

13.1 Waste treatment methods

Product	Take all necessary measures to prevent the production of residuals, value the possible methods of regeneration or recycling. Dispose in accordance with local, state, and federal regulations. Do not discharge into drains or environment.
Packaging	Reuse and recycle the packaging after its reclaim. Dispose of non-reusable packaging in accordance with local, state, and federal regulations.

European Waste Code (EWC)

Product 14 06 01* Organic solvents, refrigerants and foam / aerosol propellants of waste-chlorofluorocarbons, HCFC, HFC.
Packaging 15 01 11* Metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers.

Additional information

Waste directives and regulations: Directive 2006/12/CE, Directive 91/689/CE, Regulation (EC) no. 1013/2006.
Dispose of waste product in compliance with EC, state and/or local regulations. For more information, see section 8.

14. Transport information

14.1 UN Number UN 1956

14.2 UN proper shipping name Compressed gas, N.A.S. (Nitrogen 95%, Hydrogen 5%)

Hazard labels
ADR/RID, IMDG, IATA/ICAO

2.2 Non-flammable, non-toxic gas

Transport by road (ADR) / Transport by rail (RID)

14.3 Transport hazard class(es)	2
Classification code	1A
Kemler code	20
14.4 Packing group	n.a.
Packing instruction	P200
14.5 Environmental hazards	No
Additional information	
Tunnel restriction code of total load	Code E (Other carriage): Passage forbidden through tunnels of category E

Transport by air (IATA/ICAO)

14.3 Transport hazard class(es)	2
Class/Division	2.2
14.4 Packing group	n.a.
Passenger and cargo aircraft	Allowed
Cargo aircraft only	Allowed
14.5 Environmental hazards	No

Transport by sea (IMDG)

14.3 Transport hazard class(es)	2
Class/Division	2.2
Emergency Schedule (EmS)	F-C, S-V
14.4 Packing group	n.a.
Packing instruction	P200
14.5 Environmental hazards	No

14.6 Special precautions for user

Avoid transport on vehicles where the load space is not separated from the driver's.
Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.
Ensure that containers are firmly secured.
Ensure there is adequate ventilation.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

No data available.

15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Ozone Depletion Potential ODP (R-11=1) = 0
Global Warming Potential GWP (CO2=1) = 0

Additional regulations/legislations

Regulation (EC) No 1906/2007. Regulation REACH No. 1907/2006. Regulation (EC) n. 1272/2008. Directive 67/548/CEE
Seveso Directive 96/82/EC: Not included

15.2 Chemical safety assessment

No Chemical Safety Assessment (CSA) has been made for this product.

16. Other information

This Material Safety Data Sheet has been made according European Directive in force.

Full text of hazard (H) and precautionary (P) statements in the section 2 and 3

H280 Contains gas under pressure; may explode if heated
P403 Store in a well ventilated place

Full text of "Hazard Class and Category Code" in section 2 and 3, according to Regulation (EC) n. 1272/2008 (CLP) and Directive 67/548/EEC

Flam. Gas 1	Flammable gas Category 1
Press. Gas	Gas under pressure
F+	Extremely flammable
R12	Extremely flammable: liquids having a boiling point lower or equal to 35 °C

History	Version 4 by MAX-MAR	Version 3	Version 2	Version 1
	Revision date: 05/2019	Date: 03/2017	Date: 05/2015	Date: 10/2014

b) Abbreviations and acronyms

ADR	Accord Dangerous Route
CAS	Chemical Abstracts Service number
CE / EC	European Community
CLP	Classification, Labelling, Packaging
CSA	Chemical Safety Assessment
DNEL	Derived No Effect Level
DSD	Dangerous Substances Directive
DPD	Dangerous Preparations Directive
EC50	Effective Concentration 50%
EmS	Emergency Schedule
EWC	European Waste Codes
GHS	Global Harmonized System
GWP	Global Warming Potential
IATA	International Air Transport Association
IBC code	International Bulk Chemical Code
ICAO	International Civil Aviation Organization
IMDG code	International Maritime Dangerous Goods code
LC50	Lethal Concentration 50%
MARPOL	MARitime POLlution
n.a.	not applicable
n.d.a.	no data available
ODP	Ozone Depletion Potential
OEL	Occupational Exposure Limit
PBT	Persistent, Bioaccumulative, Toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Rail Internation Dangerous goods transport
UE / EU	European Union
vPvB	very Persistent very Bioaccumulative

Notice of liability

This information should not constitute a guarantee for any specific product properties. This information are only a guidance for safe handling, use, processing, storage, transportation, disposal and release and are not to be considered a warranty or a quality specification.