

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Powerjet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : POWERGAS 2203 (Spare-Cartridge for Powerjet) - 175 G

Product code : 098490002

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

Use of the Substance/Mixture : Gas for further use and processing

1.3 Details of the supplier of the safety data sheet

Company : Adolf Wuerth GmbH & Co. KG
Reinhold-Würth-Str. 12-17
74653 Künzelsau

Telephone : +49 794015 0

Telefax : +49 794015 10 00

E-mail address of person responsible for the SDS : prodsafe@wuerth.com

1.4 Emergency telephone number

Giftnotrufzentrale Berlin +49 30 30686 790. Gesellschaft (07:00 – 18:00 Uhr) +49 794015 2552

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable gases, Category 1	H220: Extremely flammable gas.
Gases under pressure, Liquefied gas	H280: Contains gas under pressure; may explode if heated.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :  

Signal word : Danger

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

Hazard statements : H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Response:
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
Storage:
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

May displace oxygen and cause rapid suffocation.
Extremely cold liquid and gas under pressure. Causes severe frostbite.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Remarks : No hazardous ingredients

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.

Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : Thaw frosted parts with lukewarm water. Do not rub affected area.
In case of contact, immediately flush skin with plenty of water.
Get medical attention immediately.

In case of eye contact : Get medical attention immediately.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

If swallowed : Ingestion is not considered a potential route of exposure.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Contact with liquid or refrigerated gas can cause cold burns and frostbite.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : May form explosive mixtures in air.
Exposure to combustion products may be a hazard to health.
If the temperature rises there is danger of the vessels bursting due to the high vapor pressure.

Hazardous combustion products : Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fight fire remotely due to the risk of explosion.
Use water spray to cool unopened containers.
Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Only trained personnel should re-enter the area.
Remove all sources of ignition.
Stop gas leak if it is safe to do so.
Avoid skin contact with leaking liquid (danger of frostbite).
Ventilate the area.
Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions

Environmental precautions : Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Ventilate the area.
Non-sparking tools should be used.
Suppress (knock down) gases/vapours/mists with a water spray jet.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Use equipment rated for cylinder pressure. Use a backflow preventative device in piping. Close valve after each use and when empty.

Local/Total ventilation : Use with local exhaust ventilation.
Use only in an area equipped with explosion proof exhaust ventilation.

Advice on safe handling : Do not breathe gas.
Do not swallow.
Avoid contact with eyes.
Avoid prolonged or repeated contact with skin.
Handle in accordance with good industrial hygiene and safety practice.
Keep container tightly closed.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

Wear cold insulating gloves/ face shield/ eye protection.
Prevent backflow into the gas tank.
Open the valves slowly to prevent pressure surges.
Close valve after each use and when empty. Do NOT change or force fit connections.
Prevent the intrusion of water into the gas tank.
Keep away from heat and sources of ignition.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Hygiene measures : Ensure that eye flushing systems and safety showers are located close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Keep away from direct sunlight. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

Advice on common storage : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Oxidizing agents
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives
Acutely toxic substances and mixtures
Substances and mixtures with chronic toxicity

Storage class (TRGS 510) : 2A, Gases

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
------------	---------	-------------------------------	--------------------	-------

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version 5.3 Revision Date: 21.02.2017 SDS Number: 747588-00005 Date of last issue: 26.11.2016
Date of first issue: 11.06.2010

Butane	106-97-8	AGW	1.000 ppm 2.400 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	4;(II)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).			
Propane	74-98-6	AGW	1.000 ppm 1.800 mg/m3	DE TRGS 900
Peak-limit: excursion factor (category)	4;(II)			
Further information	Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission).			

8.2 Exposure controls

Engineering measures

Minimize workplace exposure concentrations.
Use only in an area equipped with explosion proof exhaust ventilation.
Use with local exhaust ventilation.

Personal protective equipment

Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
Face-shield

Hand protection
Material : Low temperature resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday. Breakthrough time is not determined for the product. Change gloves often!

Skin and body protection : Wear the following personal protective equipment:
Flame retardant antistatic protective clothing.

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Organic gas and low boiling vapour type (AX)

Protective measures : Wear cold insulating gloves/ face shield/ eye protection.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: Liquefied gas
Colour	: colourless
Odour	: slight
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: -188 °C
Initial boiling point and boiling range	: -42 °C (1.013 hPa)
Flash point	: -40 °C
Evaporation rate	: Not applicable
Flammability (solid, gas)	: Flammable
Upper explosion limit / Upper flammability limit	: 11 %(V)
Lower explosion limit / Lower flammability limit	: 2 %(V)
Vapour pressure	: 430 kPa (15 °C)
Relative vapour density	: 1,50 (15 °C) (Air = 1.0)
Relative density	: 0,5
Solubility(ies) Water solubility	: Not applicable
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: 450 °C
Decomposition temperature	: No data available
Viscosity Viscosity, kinematic	: Not applicable
Explosive properties	: Not explosive

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

Oxidizing properties : The substance or mixture is not classified as oxidizing.

9.2 Other information

Particle size : Not applicable

Self-ignition : not auto-flammable

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : May form explosive mixtures in air.
Can react with strong oxidizing agents.
Extremely flammable gas.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products

No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Information on likely routes of exposure : Inhalation
Skin contact
Eye contact

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty pressure vessels should be returned to the supplier.
If not otherwise specified: Dispose of as unused product.

Waste Code : The following Waste Codes are only suggestions:

used product
160504, gases in pressure containers (including halons) containing dangerous substances

unused product
160504, gases in pressure containers (including halons) containing dangerous substances

uncleaned packagings
150110, packaging containing residues of or contaminated by dangerous substances

SECTION 14: Transport information

14.1 UN number

ADN	: UN 2037
ADR	: UN 2037
RID	: UN 2037
IMDG	: UN 2037
IATA	: UN 2037

14.2 UN proper shipping name

ADN	: RECEPTACLES, SMALL, CONTAINING GAS
ADR	: RECEPTACLES, SMALL, CONTAINING GAS
RID	: RECEPTACLES, SMALL, CONTAINING GAS
IMDG	: RECEPTACLES, SMALL, CONTAINING GAS
IATA	: Receptacles, small, containing gas

14.3 Transport hazard class(es)

ADN	: 2
ADR	: 2
RID	: 2
IMDG	: 2.1
IATA	: 2.1

14.4 Packing group

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

ADN

Packing group : Not assigned by regulation
Classification Code : 5F
Labels : 2.1

ADR

Packing group : Not assigned by regulation
Classification Code : 5F
Labels : 2.1
Tunnel restriction code : (D)

RID

Packing group : Not assigned by regulation
Classification Code : 5F
Hazard Identification Number : 23
Labels : 2.1

IMDG

Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U

IATA (Cargo)

Packing instruction (cargo aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

IATA (Passenger)

Packing instruction (passenger aircraft) : 203
Packing instruction (LQ) : Y203
Packing group : Not assigned by regulation
Labels : Flammable Gas

14.5 Environmental hazards

ADN

Environmentally hazardous : no

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : no

14.6 Special precautions for user

Not applicable

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

Remarks : Not applicable for product as supplied.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

P2	FLAMMABLE GASES	Quantity 1 10 t	Quantity 2 50 t
18	Liquefied extremely flammable gases (including LPG) and natural gas	50 t	200 t

Water contaminating class (Germany) : nwg not water endangering
Classification according VwVwS, Annex 4.

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial emissions (integrated pollution prevention and control)
Volatile organic compounds (VOC) content: 100 %
Remarks: VOC content excluding water

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of other abbreviations

DE TRGS 900 : Germany. TRGS 900 - Occupational exposure limit values.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

DE TRGS 900 / AGW : Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Classification of the mixture:

Flam. Gas 1	H220
Press. Gas Liquefied gas	H280

Classification procedure:

Based on product data or assessment
Based on product data or assessment

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006



POWERGAS 2203 (Spare-Cartridge for Power-jet) - 175 G

Version	Revision Date:	SDS Number:	Date of last issue: 26.11.2016
5.3	21.02.2017	747588-00005	Date of first issue: 11.06.2010

to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

DE / EN