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

1.1 Product identifier

APT Gas
Article number: 605143

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

1.2.1 Relevant uses

Fuel

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Hager & Werken GmbH & Co. KG
Ackerstr. 1
47269 Duisburg / GERMANY
Phone +49(0)203-99269-0
Fax +49 (0)203 29 92 83
Homepage www.hagerwerken.de
E-mail info@hagerwerken.de

Address enquiries to

Technical information info@hagerwerken.de

Safety Data Sheet sdb@chemiebuero.de

1.4 Emergency telephone number

Advisory body +49 (0) 551-19240 Giftinformationszentrum-Nord

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (GB) CLP]

Flam. Gas 1: H220 Extremely flammable gas.
Press. Gas (Liquefied gas): H280 Contains gas under pressure; may explode if heated.

2.2 Label elements

The product is required to be labelled in accordance with regulation (EC) No 1272/2008 (CLP).

Hazard pictograms


Signal word DANGER

Hazard statements

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

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe gas.
P381 In case of leakage, eliminate all ignition sources.
P410+P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

Human health dangers

Frostbite.
High concentrations can cause a suffocating.

Environmental hazards

Does not contain any PBT or vPvB substances.
Contains no ingredients with endocrine-disrupting properties.

Other hazards

Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

3.1 Substances

not applicable

3.2 Mixtures

The product is a mixture.

Range [%]	Substance
<95	Butane
	CAS: 106-97-8
	GHS/CLP: Flam. Gas 1: H220 - Press. Gas: H280
<95	Propane
	CAS: 74-98-6
	GHS/CLP: Flam. Gas 1: H220 - Press. Gas: H280
<5	iso-Butane
	CAS: 75-28-5
	GHS/CLP: Flam. Gas 1: H220 - Press. Gas: H280
<2	Pentane
	CAS: 109-66-0
	GHS/CLP: Flam. Liq. 2: H225 - Asp. Tox. 1: H304 - STOT SE 3: H336 - Aquatic Chronic 2: H411

Comment on component parts Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Change soaked clothing.

Inhalation Ensure supply of fresh air.
In the event of symptoms seek medical treatment.

Skin contact In case of frostbite, rinse with plenty of water. Do not remove clothing.
Get medical advice.

Eye contact In case of contact with eyes rinse thoroughly with plenty of water and seek medical advice.

Ingestion not applicable

4.2 Most important symptoms and effects, both acute and delayed

Headache
Vertigo
Dizziness

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Water.
Dry powder.
Foam.

Extinguishing media that must not be used Carbon dioxide.

5.2 Special hazards arising from the substance or mixture

risk of formation of toxic pyrolysis products, carbon monoxide (CO), not combusted hydrocarbons
Bursting gas cylinder can be forcibly projected from a fire.

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.
Cool containers at risk with water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep away from all sources of ignition.
Ensure adequate ventilation.
Use personal protective equipment (protective gloves, safety glasses, protective clothing).
Use breathing apparatus.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in well-ventilated areas.

Keep away from all sources of ignition - Refrain from smoking.
Vapours can form an explosive mixture with air.

Do not eat, drink, smoke or take drugs at work.
Wash hands before breaks and after work.
Use barrier skin cream.

7.2 Conditions for safe storage, including any incompatibilities

Provide solvent-resistant and impermeable floor.

Do not store together with oxidizing agents.

Keep container in a well-ventilated place.
Keep in a cool place, heat causes increase in pressure and risk of bursting.
Protect from heat/overheating and from sun.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

Substance
Butane
CAS: 106-97-8
Long-term exposure: 600 ppm, 1450 mg/m³
Short-term exposure (15-minute): 750 ppm, 1810 mg/m³
iso-Butane
CAS: 75-28-5
Long-term exposure: 600 ppm, 1450 mg/m³, (Butane)
Short-term exposure (15-minute): 750 ppm, 1810 mg/m³
Pentane
CAS: 109-66-0
Long-term exposure: 600 ppm, 1800 mg/m³

DNEL

Substance
Butane, CAS: 106-97-8
There are no DNEL values established for the substance.
Propane, CAS: 74-98-6
There are no DNEL values established for the substance.
iso-Butane, CAS: 75-28-5
There are no DNEL values established for the substance.
Pentane, CAS: 109-66-0
Industrial, dermal, Long-term - systemic effects, 432 mg/kg bw/day
Industrial, inhalative, Long-term - systemic effects, 3000 mg/m³
general population, oral, Long-term - systemic effects, 214 mg/kg bw/day
general population, inhalative, Long-term - systemic effects, 643 mg/m³
general population, dermal, Long-term - systemic effects, 214 mg/kg bw/day

PNEC

Substance
Butane, CAS: 106-97-8
There are no PNEC values established for the substance.
Propane, CAS: 74-98-6
There are no PNEC values established for the substance.
iso-Butane, CAS: 75-28-5
There are no PNEC values established for the substance.
Pentane, CAS: 109-66-0
soil, 550 µg/kg soil dw
sediment (seawater), 1.2 mg/kg sediment dw
sediment (freshwater), 1.2 mg/kg sediment dw
sewage treatment plants (STP), 3.6 mg/L
seawater, 230 µg/L
freshwater, 230 µg/L

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation. Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.
Eye protection	Safety glasses. (EN 166:2001)
Hand protection	Leather gloves. The details concerned are recommendations. Please contact the glove supplier for further information.
Skin protection	Protective clothing (EN 340)
Other	Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.
Respiratory protection	In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection. Short term: filter apparatus, filter A. (DIN EN 14387)
Thermal hazards	No information available.
Delimitation and monitoring of the environmental exposition	not determined

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquefied pressure gas
Color	colourless
Odor	characteristic
Odour threshold	not applicable
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	-42 – 0
Flash point [°C]	-80
Flammability (solid, gas) [°C]	yes
Lower explosion limit	5,0 Vol.%
Upper explosion limit	10,9 Vol.%
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	220 – 840
Density [g/cm³]	0,50 – 0,58
Relative density	not determined
Bulk density [kg/m³]	not applicable
Solubility in water	<0,1 g/L (20°C)
Solubility other solvents	No information available.
Partition coefficient [n-octanol/water]	No information available.
Kinematic viscosity	not applicable
Relative vapour density	No information available.
Evaporation speed	not applicable
Melting point [°C]	-188 – -138
Auto-ignition temperature	365 – 470
Decomposition temperature [°C]	not applicable
Particle characteristics	No information available.

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Risk of bursting.
Reactions with oxidizing agents.
In use, may form flammable/explosive vapour-air mixture.

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

Strong oxidizing agent.

10.6 Hazardous decomposition products

Flammable gases/vapours.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity Based on available data, the classification criteria are not met.

Substance
Pentane, CAS: 109-66-0
LD50, oral, Rat, >2000 mg/kg bw

Acute dermal toxicity Based on available data, the classification criteria are not met.

Acute inhalational toxicity Based on available data, the classification criteria are not met.

Substance
Butane, CAS: 106-97-8
LC50, inhalative, Rat, 658 mg/L (IUCLID)
Propane, CAS: 74-98-6
LC50, inhalative, Rat, > 1443 mg/l (15 min) (Lit.)
iso-Butane, CAS: 75-28-5
LC50, inhalative, mouse, 1237 mg/L
Pentane, CAS: 109-66-0
LC50, inhalative, Rat, 25.3 mg/L, 4h

Serious eye damage/irritation Based on available data, the classification criteria are not met.

Substance
Butane, CAS: 106-97-8
Eye, non-irritating
Propane, CAS: 74-98-6
Eye, non-irritating
iso-Butane, CAS: 75-28-5
Eye, non-irritating

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Substance
Butane, CAS: 106-97-8
dermal, non-irritating
Propane, CAS: 74-98-6
dermal, non-irritating
iso-Butane, CAS: 75-28-5
dermal, non-irritating

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Substance
Butane, CAS: 106-97-8
inhalative, non-sensitizing
dermal, non-sensitizing
Propane, CAS: 74-98-6
inhalative, non-sensitizing
dermal, non-sensitizing
iso-Butane, CAS: 75-28-5
inhalative, non-sensitizing

dermal, non-sensitizing

Specific target organ toxicity — single exposure Based on available data, the classification criteria are not met.

Substance
Butane, CAS: 106-97-8
inhalative, non-irritating
Propane, CAS: 74-98-6
inhalative, non-irritating
iso-Butane, CAS: 75-28-5
inhalative, non-irritating

Specific target organ toxicity — repeated exposure Based on available data, the classification criteria are not met.

Substance
Propane, CAS: 74-98-6
NOAEC, inhalative, Rat, 4437 mg/m³

Mutagenicity Does not contain a relevant substance that meets the classification criteria.

Reproduction toxicity Does not contain a relevant substance that meets the classification criteria.

Carcinogenicity Does not contain a relevant substance that meets the classification criteria.

Aspiration hazard Based on available data, the classification criteria are not met.

General remarks

Toxicological data of complete product are not available.
The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists. The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 12: Ecological information

12.1 Toxicity

Substance
Pentane, CAS: 109-66-0
EL50, (72h), Algae, 20.33 mg/L
EL50, (48h), Invertebrates, 48.11 mg/L
LL50, (96h), fish, 27.55 mg/L

12.2 Persistence and degradability

Behaviour in environment compartments not determined

Behaviour in sewage plant not determined

Biological degradability not determined

12.3 Bioaccumulative potential

Accumulation in organisms is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Endocrine disrupting properties

Contains no ingredients with endocrine-disrupting properties.

12.7 Other adverse effects

Ecological data of complete product are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with national regulations.

Product

Dispose of as hazardous waste.

Contaminated packaging

Uncontaminated packaging may be taken for recycling.

SECTION 14: Transport information

14.1 UN number or ID number

Transport by land according to ADR/RID	1965
Inland navigation (ADN)	1965
Marine transport in accordance with IMDG	1965
Air transport in accordance with IATA	1965

14.2 UN proper shipping name

Transport by land according to ADR/RID	Hydrocarbon gas mixture, liquefied, n.o.s. (Isobutane, Isopentane)
- Classification Code	2F
- Label	
- ADR LQ	0 l
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 2 (B/D)
Inland navigation (ADN)	Hydrocarbon gas mixture, liquefied, n.o.s. (Isobutane, Isopentane)
- Classification Code	2F
- Label	
Marine transport in accordance with IMDG	Hydrocarbons , liquefied, n.o.s. (Isobutane, Isopentane)
- EMS	F-D, S-U
- Label	
- IMDG LQ	0 l
Air transport in accordance with IATA	Hydrocarbons, liquefied, n.o.s. (Isobutane, Isopentane)
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	2
Inland navigation (ADN)	2
Marine transport in accordance with IMDG	2.1
Air transport in accordance with IATA	2.1

14.4 Packing group

Transport by land according to ADR/RID	not applicable
Inland navigation (ADN)	not applicable
Marine transport in accordance with IMDG	not applicable
Air transport in accordance with IATA	not applicable

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information

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

TRANSPORT-REGULATIONS	ADR (2021); IMDG-Code (2021, 40. Amdt.); IATA-DGR (2021)
NATIONAL REGULATIONS (GB):	EH40/2005 Workplace exposure limits (Second edition, published December 2011).
- Observe employment restrictions for people	Observe employment restrictions for young people.
- VOC (2010/75/CE)	100 %

15.2 Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

16.1 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
IVIS = In vitro irritation score
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.2 Other information

Classification procedure

Flam. Gas 1: H220 Extremely flammable gas. (Calculation method)
Press. Gas (Liquefied gas): H280 Contains gas under pressure; may explode if heated. (Calculation method)

Modified position

none