Safety Data Sheet

acc. to The REACH etc. (Amendment etc.) (EU Exit)
Regulations 2019, SI 2019/758 (as amended)

POWERCLEAN 350

Version number: 1.0 First version: 2023-04-06

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

1.1 Product identifier

Identification of the substance trans-1,3,3,3-tetrafluoroprop-1-ene

Trade name **POWERCLEAN 350**
Pressurised gas cleaning spray, non-combustible
350 ml spray can

Product number 582919

EC number 471-480-0

CAS number 29118-24-9

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

Relevant identified uses Pressurised gas cleaning spray

1.3 Details of the supplier of the safety data sheet

DURABLE Hunke & Jochheim GmbH & Co. KG
Westfalenstraße 77 – 79
58636 Iserlohn
Germany

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e-mail: durable@durable.de
Website: www.durable.de

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Please do not use this e-mail address to ask for the latest safety data sheet. For this purpose contact :

DURABLE Hunke & Jochheim GmbH & Co. KG
Telephone: +49 (0) 2371 662 350
e-Mail: durable-clean@durable.de

1.4 Emergency telephone number

Poison centre

Country	Name	Telephone
Germany	Giftnotruf Berlin	+49 30 19240

As above or nearest toxicological information centre.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (acc. to GB CLP)

Classification				
Section	**Hazard class**	**Category**	**Hazard class and category**	**Hazard statement**
2.3	aerosols	3	Aerosol 3	H229

For full text of abbreviations: see SECTION 16

2.2 Label elements

Labelling (acc. to GB CLP)

Signal word warning

Pictograms Not required.

Hazard statements

H229 Pressurised container: May burst if heated.

Precautionary statements

P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251 Do not pierce or burn, even after use.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

Additional labelling according to Directive 75/324/EEC relating to aerosol dispensers

Non-flammable.
Keep out of reach of children.
Pressurized container: may burst if heated.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not pierce or burn, even after use.
Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

Symbols:

2.3 Other hazards

Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

Endocrine disrupting properties

Not listed.

SECTION 3: Composition/information on ingredients

3.1 Substances

Name of substance	trans-1,3,3,3-tetrafluoroprop-1-ene
Identifiers	
CAS No	29118-24-9
EC No	471-480-0
Molecular formula	C3H2F4
Molar mass	114 $^{g}/_{mol}$

SECTION 4: First aid measures

4.1 Description of first aid measures

General notes

Take off immediately all contaminated clothing.
In all cases of doubt, or when symptoms persist, seek medical advice.

Following inhalation

Provide fresh air.

Following skin contact

Gently wash with plenty of soap and water.

Following eye contact

Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.

Following ingestion

Remove person to fresh air and keep comfortable for breathing.

Notes for the doctor

None.

4.2 Most important symptoms and effects, both acute and delayed

Choking and suffocation risks.
Contact with the product can cause burns and/or frostbite.

4.3 Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Co-ordinate firefighting measures to the fire surroundings

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Contains gas under pressure; may explode if heated.

Hazardous combustion products

carbon dioxide (CO2), hydrogen fluoride (HF)

5.3 Advice for firefighters

Keep containers cool with water spray.
In case of fire and/or explosion do not breathe fumes.
Co-ordinate firefighting measures to the fire surroundings.
Do not allow firefighting water to enter drains or water courses.
Collect contaminated firefighting water separately.
Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

chemical protection suit, self-contained breathing apparatus (EN 133)

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.
Ventilate affected area.
Avoid contact with skin and eyes.
Wearing of suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing.
Avoid inhaling sprayed product.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

In case of formation of gases/vapours/mists suppress with water spray

6.3 Methods and material for containment and cleaning up

Other information relating to spills and releases

Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5.
Personal protective equipment: see section 8.
Incompatible materials: see section 10.
Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.
Use only in well-ventilated areas.
Prevent from heating up above 50 °C/122 °F.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Specific notes/details

Vapours may form explosive mixtures with air.
Pressurized container: may burst if heated.

Measures to protect the environment

Avoid release to the environment.

Advice on general occupational hygiene

Do not eat, drink and smoke in work areas.
Wash hands after use.
Preventive skin protection (barrier creams/ointments) is recommended.
Remove contaminated clothing and protective equipment before entering eating areas.

7.2 Conditions for safe storage, including any incompatibilities

Explosive atmospheres

Prevent from heating up above 50 °C/122 °F.
Protect from sunlight.

Flammability hazards

Do not spray on an open flame or other ignition source.
Protect from sunlight.

Incompatible substances or mixtures

Incompatible materials: see section 10.

Do not pierce or burn, even after use.

Protect against external exposure, such as

heat

Consideration of other advice

Do not pierce or burn, even after use.
Keep away from food, drink and animal feeding stuffs.

Ventilation requirements

Provision of sufficient ventilation.

Specific designs for storage rooms or vessels

Storage temperature maximum storage temperature: 50 °C

Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

7.3 Specific end use(s)

Pressurised gas cleaning spray.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limit values (Workplace Exposure Limits)
This information is not available

Human health values

Relevant DNELs and other threshold levels

Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
DNEL	3,902 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects

Environmental values

Relevant PNECs and other threshold levels

Endpoint	Threshold level	Environmental compartment
PNEC	0.117 $^{mg}/_{l}$	freshwater

8.2 Exposure controls

Appropriate engineering controls

Use local and general ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection. (EN 166).

Hand protection

Protective gloves

Material	Material thickness	Breakthrough times of the glove material
NBR: acrylonitrile-butadiene rubber	≥ 0,11 mm	>10 minutes (permeation: level 1)

Wear suitable gloves.
Chemical protection gloves are suitable, which are tested according to EN 374.
Check leak-tightness/impermeability prior to use.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.
During spraying wear suitable respiratory equipment.
(EN 136, EN 140, EN 14387, EN 143, EN 149).

Environmental exposure controls

Avoid release to the environment.
Disposal considerations: see section 13.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	gaseous (spray aerosol)
Colour	colourless
Odour	faintly perceptible like ether
Melting point/freezing point	not applicable
Boiling point or initial boiling point and boiling range	-19 °C at 1,013 hPa
Flammability	non-flammable aerosol in accordance with GHS criteria
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not applicable (aerosol)
Decomposition temperature	not relevant
pH (value)	not determined
Viscosity	not relevant (aerosol)
Solubility(ies)	
Water solubility	373 $^{mg}/_{l}$ at 24 °C
Partition coefficient n-octanol/water (log value)	1.6 (pH value: 7, 25 °C) (OECD Guideline 117)
Vapour pressure	427 kPa at 21 °C 111.5 kPa at 55 °C
Density and/or relative density	
Density	1.17 $^{g}/_{cm^3}$ at 21.1 °C
Relative vapour density	4 (air = 1)

	Particle characteristics	not relevant (aerosol)

9.2 Other information

Information with regard to physical hazard classes	there is no additional information
Other safety characteristics	
Temperature class (EU, acc. to ATEX)	T2 (maximum permissible surface temperature on the equipment: 300°C)

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

Pressurized container: may burst if heated.

10.4 Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Do not spray on an open flame or other ignition source.
Contains gas under pressure; may explode if heated.
Prevent from heating up above 50 °C/122 °F.

Protect from sunlight.

10.5 Incompatible materials

alkali metal

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.
Carbon monoxide (CO).
Carbon dioxide (CO_2).
Hydrogen fluoride (HF).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

If not otherwise specified the classification is based on:

Animal studies; Evidence from any other toxicity tests; Expert judgement (weight of evidence determination).

Classification acc. to GHS

Acute toxicity

The classification criteria for this hazard class are not met.

Exposure route	Endpoint	Value	Species	Method	Source
inhalation: gas	LC50	>207,000 ppmV/4h	rat	OECD Guideline 403	ECHA

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

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

Respiratory sensitisation

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

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

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

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - repeated exposure

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

Aspiration hazard

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

11.2 Information on other hazards

Endocrine disrupting properties

Not listed.

SECTION 12: Ecological information

12.1 Toxicity

Aquatic toxicity (acute)

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

Endpoint	Exposure time	Value	Species	Method	Source
LC50	96 h	>117 $^{mg}/_{l}$	common carp (Cyprinus caprio)	OECD Guideline 203	ECHA
EC50	48 h	>160 $^{mg}/_{l}$	daphnia magna	OECD Guideline 202	ECHA
ErC50	72 h	>170 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA

Aquatic toxicity (chronic)

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

Endpoint	Exposure time	Value	Species	Method	Source
NOEC	72 h	170 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA
growth (EbCx) 10%	72 h	<170 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA
growth rate (ErCx) 10%	72 h	>170 $^{mg}/_{l}$	algae (pseudokirchneriella subcapitata)	OECD Guideline 201	ECHA

12.2 Persistence and degradability

Biodegradation

No data available.

Process of degradability

Process	Degradation rate	Time	Method	Source
DOC removal	0 %	28 d	OECD Guideline 301 D	ECHA

Persistence

No data available.

12.3 Bioaccumulative potential

n-octanol/water (log KOW) 1.6 (pH value: 7, 25 °C)
(ECHA)

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

According to the results of its assessment, this substance is not a PBT or a vPvB.

12.6 Endocrine disrupting properties

Not listed.

12.7 Other adverse effects

Data are not available.

Remarks

Wassergefährdungsklasse, WGK (water hazard class): 1

SECTION 13: Disposal considerations

13.1 Waste treatment methods

This material and its container must be disposed of as hazardous waste.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Completely emptied packages can be recycled.
Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions.

SECTION 14: Transport information

14.1	**UN number**	
	ADR/RID	UN1950
	IMDG-Code	UN1950
	ICAO-TI	UN1950
14.2	**UN proper shipping name**	
	ADR/RID	AEROSOLS
	IMDG-Code	AEROSOLS
	ICAO-TI	Aerosols, non-flammable
14.3	**Transport hazard class(es)**	
	ADR/RID	2 (2.2)
	IMDG-Code	2.2
	ICAO-TI	2.2
14.4	**Packing group**	-
14.5	**Environmental hazards**	-
14.6	**Special precautions for user**	-
14.7	**Maritime transport in bulk according to IMO instruments**	-

14.8 Information for each of the UN Model Regulations

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR). Regulations concerning the International Carriage of Dangerous Goods by Rail (RID). Additional information

Particulars in the transport document	UN1950, AEROSOLS, 2.2, (E)
Classification code	5A

Danger label(s)	2.2

Special provisions (SP)	190, 327, 344, 625
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
Transport category (TC)	3
Tunnel restriction code (TRC)	E

International Maritime Dangerous Goods Code (IMDG) Additional information

Marine pollutant	-
Danger label(s)	2.2

Special provisions (SP)	63, 190, 277, 327, 344, 381, 959
Excepted quantities (EQ)	E0
Limited quantities (LQ)	1 L
EmS	F-D, S-U
Stowage category	-

International Civil Aviation Organization (ICAO-IATA/DGR) Additional information

Danger label(s)	2.2

Special provisions (SP)	A98, A145, A167
Excepted quantities (EQ)	E0
Limited quantities (LQ)	30 kg

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Seveso Directive

Not assigned.

Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)

Not listed.

Regulation on the marketing and use of explosives precursors

Not listed.

Regulation on drug precursors

Not listed.

Regulation on substances that deplete the ozone layer (ODS)

Not listed.

Regulation concerning the export and import of hazardous chemicals (PIC)

Not listed.

Regulation on persistent organic pollutants (POP)

Not listed.

National regulations (GB)

List of substances subject to authorisation (GB REACH, Annex 14) / SVHC - candidate list

Not listed

Restrictions according to GB REACH, Annex 17

Not listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance by the supplier.

SECTION 16: Other information

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
GB CLP	The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended)
GB REACH	The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended)

Abbr.	Descriptions of used abbreviations
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

The REACH etc. (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/758 (as amended).
The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019, SI 2019/720 (as amended).
GB mandatory classification and labelling.

Agreement concerning the International Carriage of Dangerous Goods by Road (ADR).
Regulations concerning the International Carriage of Dangerous Goods by Rail (RID).
International Maritime Dangerous Goods Code (IMDG).
Dangerous Goods Regulations (DGR) for the air transport (IATA).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H229	Pressurised container: May burst if heated.

Responsible for the safety data sheet

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Disclaimer

This information is based upon the present state of our knowledge.
This SDS has been compiled and is solely intended for this product.