



SAFETY DATA SHEET

According to Regulation (EC) No 1907/2006

TRW Brake Cleaner Spray

Version number: 1

Issued: 2026-07-22

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

1.1. Product identifier

Trade name

TRW Brake Cleaner Spray

Article No.

PFC105, PFC105CE, PFC105E, PFC105SE, PFC105RE

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

Product type

Mixture.

Relevant identified uses

Cleaning agent.

Not suitable for use in

No uses advised against identified.

1.3. Details of the supplier of the safety data sheet

SDS created by

Global Division B Product Compliance Mgmt. System (BWC)

Supplier

ZF Aftermarket

Address

ZF Friedrichshafen AG

Obere Weiden 12

97424 Schweinfurt

Germany

Telephone

+49 9721 475 60

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msds.zf-aftermarket@zf.com

Web site

www.zf.com/contact

Contact person

Global Division B Product Compliance Mgmt. System (BWC)



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Email

msds.zf-aftermarket@zf.com

1.4. Emergency telephone number

+49 (0)89 19240 Information in German and English

Available outside office hours

Yes

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Flammable aerosols, hazard category 1

Skin irritation, hazard category 2

Specific Target Organ Toxicity — Single exposure, hazard category 3 - narcosis

Hazardous to the aquatic environment — Chronic hazard category 2

Aspiration hazard, hazard category 1

Hazard statements

H222, H304, H315, H336, H411

Description

The product has been classified and labelled as hazardous according to regulation (EU) 1272/2008 (CLP).

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H222 Extremely flammable aerosol.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.



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Precautionary statements

P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P261 Avoid breathing spray..
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P302 + P352 IF ON SKIN: Wash with plenty of water/.
P332 + P313 If skin irritation occurs: Get medical advice/attention.
P410 + P412 Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F.
P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal..

More information

Contains : Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane

2.3. Other hazards

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration $\geq 0,1$ %.



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SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentra- tion	Classification	H-phrases M factor acute M factor chronic	Specific concentra- tion limits ATE	Note
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane	64742-49-0 921-024-6 01-2119475514- 35 -	50 - <100%	Flam. Liq. 2, Asp. Tox. 1, Skin Irrit. 2, STOT SE 3 - narcosis, Aquatic Chronic 2	H225, H304, H315, H336, H411 - -		-
Carbon dioxide	124-38-9 204-696-9 - -	3 - <5%	Press. Gas	H280 - -		-

Product based on

aliphatic hydrocarbons : >= 30 %

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

First aider: Pay attention to self-protection! Remove persons to safety. Never give anything by mouth to an unconscious person or a person with cramps.

Inhalation

Remove person to fresh air and keep comfortable for breathing.
Get medical attention if any discomfort continues.

Skin contact

Wash with plenty of water. Take off immediately all contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.



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Eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Call a POISON CENTER/doctor.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms like headache, fatigue and nausea may appear.
Dizziness.
Skin irritation.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Call a POISON CENTER/doctor.

SECTION 5: Firefighting measures

5.1. Extinguishing media**Suitable extinguishing media**

In case of fire: Use alcohol resistant foam, carbon dioxide or dry powder to extinguish. Water spray.

Unsuitable extinguishing media

Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO₂, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

5.3. Advice for firefighters**Special protective equipment for fire-fighters**

In case of fire and/or explosion do not breathe fumes. Move undamaged containers from immediate hazard area if it can be done safely. In case of fire: Wear self-contained breathing apparatus.

Other

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.



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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice: Wear breathing apparatus if exposed to vapours/dusts/aerosols. Remove all sources of ignition. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protection equipment. For non-emergency personnel: First aider: Pay attention to self-protection! For emergency responders: Fight fire with normal precautions from a reasonable distance.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Due to danger of explosion, prevent leakage of vapours into cellars, flues and ditches. Prevent spread over a wide area (e.g. by containment or oil barriers). In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

6.3. Methods and material for containment and cleaning up

For containment: Prevent spread over a wide area (e.g. by containment or oil barriers). For cleaning up: Clean contaminated articles and floor according to the environmental legislation. Other information: Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Clean contaminated articles and floor according to the environmental legislation.

6.4. Reference to other sections

See Section 8 of the SDS for Personal Protective Equipment. See Section 7 for information on safe handling. See Section 13 for information on disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Observe technical data sheet. Observe instructions for use.

Dust must be exhausted directly at the point of origin. Vapours/aerosols must be exhausted directly at the point of origin. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

When using do not eat, drink, smoke, sniff.

Wear personal protection equipment (refer to section 8).

In case of insufficient ventilation and/or through use, explosive/highly flammable mixtures may develop.



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General hygiene

Avoid exposure! Wear suitable protective clothing. Draw up and observe skin protection programme.
Avoid contact with skin and eyes.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed. Observe legal regulations and provisions.

Hints on joint storage:

Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feed-ingstuffs

Further information on storage conditions:

Protect from frost. Protect from direct sunlight. Store in a cool dry place. Observe legal regulations and provisions.

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits

See below OEL table.

National occupational exposure limits

Ingredient	CAS No. EC No.	Exposure limit ppm / mg/m ³	Source	Remark	Year
Carbon dioxide	124-38-9 -	5000 / 9000		TWA (8 h)	-

DNEL/DMEL

Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane (64742-49-0/-)	DNEL	Chronic (long term) Inhalation	2035 mg/m ³	Workers	Systemic
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane (64742-49-0/-)	DNEL	Chronic (long term) Dermal	773 mg/kg bw/day	Workers	Systemic
Hydrocarbons, C6-C7, n-alkanes,	DNEL	Chronic (long term)	608 mg/m ³	Consumers	Systemic



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Product/Substance name (CAS No./EC No.)	Type	Exposure	Value	Population	Effects
isoalkanes, cyclics, < 5% n-hexane (64742-49-0/-)		Inhalation			
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane (64742-49-0/-)	DNEL	Chronic (long term) Dermal	699 mg/kg bw/day	Consumers	Systemic
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane (64742-49-0/-)	DNEL	Chronic (long term) Oral	699 mg/kg bw/day	Consumers	Systemic

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Personal Protective Equipment Symbols



Eye / face protection

Wear approved, tight fitting safety glasses where splashing is probable.

EN 166

Hand protection

Material: Nitrile butyl rubber (NBR).

Breakthrough time: 480 min

Thickness of the glove material: 0.45 mm

EN ISO 374

Other skin protection

Wear suitable protective clothing as protection against splashing or contamination. Take off immediately all contaminated clothing and wash it before reuse.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

When exceeding the relevant workplace exposure limits, note the following:

Suitable respiratory protective equipment: Combination filter device (DIN EN 141).

Filtering device with filter or ventilator filtering device of type: AX

Observe the wear time limits as specified by the manufacturer.

Observe legal regulations and provisions.

Environmental exposure controls

Observe legal regulations and provisions.



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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Aerosol

Colour

Colourless.

Odour

Solvent.

Melting point / freezing point

No data available

Boiling point or initial boiling point and boiling range

88 °C

Flammability

Not applicable.

Lower and upper explosion limit

1 vol. %; 8 vol. %

Flash point

-12 °C

Auto-ignition temperature

> 200 °C

Decomposition temperature

No data available

pH

No data available

Kinematic viscosity

< 7 mm²/s (40 °C)

Solubility

No data available

Water solubility

Insoluble in water.

Partition coefficient n-octanol/water

No data available



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Vapour pressure

No data available

Density and/or relative density

0,673 g/cm³

Method

DIN 51757

Relative vapour density

No data available

Oxidising properties

Not oxidizing

Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

FLAMMABLE.

10.2. Chemical stability

Stable under normal temperature conditions.

10.3. Possibility of hazardous reactions

Do not expose to temperatures exceeding 50°C/122°F. Heating causes rise in pressure with risk of bursting.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Vapours can form explosive mixtures with air. Take precautionary measures against static discharges.

10.5. Incompatible materials

Hints on joint storage:

Do not store together with: Oxidizing agents. Pyrophoric or self-heating substances. Food and feed-
ingstuffs



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10.6. Hazardous decomposition products

Incomplete combustion and thermolysis gases of different toxicity can occur. In the case of hydrocarbonaceous products such as CO, CO₂, aldehydes and soot. These can be very dangerous if they are inhaled in high concentrations or in enclosed spaces.

Other

Do not mix with other chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

ATE (Oral) : > 2000 mg/kg

ATE (Dermal) : > 2000 mg/kg

ATE (Inhalation) > 20 mg/l (vapours) ; > 5 mg/l (dust/mist)

Product / Substance name CAS / EC no.	Dose descriptor	Value / Dose	Exposure route	Duration of exposure	Test animals
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	LD50	> 5000 mg/kg	Oral.	-	Rat.
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	LD50	> 2800 - 3100 mg/kg	Dermal	-	Rat.
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	LC50	> 25.2 mg/l (vapours)	Inhalation:	4 hr	Rat.

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

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



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Respiratory or skin sensitisation

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

Germ cell mutagenicity

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

Carcinogenicity

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

Reproductive toxicity

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

STOT-single exposure

May cause drowsiness or dizziness. (Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane)

STOT-repeated exposure

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

Aspiration hazard

May be fatal if swallowed and enters airways.

Routes of exposure

Ingestion. Inhalation. Skin contact. Eye contact.

11.2. Information on other hazards**Endocrine disrupting properties**

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

SECTION 12: Ecological information**12.1. Toxicity****Acute toxicity**

Toxic to aquatic life with long lasting effects.

Acute fish toxicity



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Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyc-lics, < 5% n-hexane 64742-49-0	LC50	> 1-10 mg/l	96 hr	Pimephales promelas

Acute algae toxicity

Product / Sub-stance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species	Method / Guideline
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	ErC50	10 - 30 mg/l	48 hr	Pseudokirchneriella subcapitata	OECD Guideline 201

Acute crustacean toxicity

Product / Substance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyc-lics, < 5% n-hexane 64742-49-0	EC50	> 1-10 mg/l	48 hr	Daphnia magna

Chronical toxicity

Product / Sub-stance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species	Method / Guideline	Remark
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyc-lics, < 5% n-hexane -	NOEC	2.045 mg/l	28 d	Oncorhynchus mykiss	-	CONCAWE, Brus-sels, Belgium (2010)



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Product / Sub- stance name CAS / EC no.	Measurement type	Value / Result	Duration of exposure	Species	Method / Guideline	Remark
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	NOEC	1 mg/l	21 d	Daphnia magna	OECD Guideline 211	SIDS Initial Assessment Report For SIAM

12.2. Persistence and degradability

There are no data available on the mixture itself. AOX (mg/l): 0

Product / Sub- stance name CAS / EC no.	Duration	Result	Degradation	Method / Guideline	Remark
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	28 d	The substance is readily biodegradable.	98%	OECD Guideline 301 F	ECHA

12.3. Bioaccumulative potential

Product / Substance name CAS / EC no.	LogKow / LogPow
Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclics, < 5% n-hexane 64742-49-0	Log Pow: 3.4 - 5.2

12.4. Mobility in soil

Mobility

No information available.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB in a concentration $\geq 0,1\%$.



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12.6. Endocrine disrupting properties

This product does not contain any substance present at a concentration equal to or greater than 0.1% by mass, included in the list drawn up in accordance with article 59, paragraph 1 of the REACH Regulation, due to its endocrine disrupting properties, or a substance known to have endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation 2018/605.

12.7. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

Waste code	Waste description
16 05 04*	gases in pressure containers (including halons) containing hazardous substances
15 01 04	metallic packaging

Please note - an asterisk (*) next to a code denotes that it is HAZARDOUS WASTE.

SECTION 14: Transport information

14.1. UN number

UN 1950

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

AEROSOLS

IMDG proper shipping name

AEROSOLS (Hydrocarbons, C6-C7, n-alkanes, isoalkanes, cyclic, < 5% n-hexane)

IATA proper shipping name

AEROSOLS, flammable

14.3. Transport hazard class(es)

Label

Hazard label: 2.1



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ADR / RID Class

2

ADN Class Code

5F

14.4. Packing group

Not applicable

14.5. Environmental hazards

Yes.

IMDG Marine Pollutant

Yes.

14.6. Special precautions for user

Flammable gas.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

Other

Additional information IMDG

Special provisions: 63, 190, 277, 327, 344, 381,959

Limited quantity: 1000 mL

Excepted quantity: E0

EmS: F-D, S-U

Additional information IATA (ICAO)

Special provisions: A145, A167, A802

Limited quantity Passenger: 30 kg G

Passenger LQ: Y203

Excepted quantity: E0

IATA-packing instructions - Passenger: 203

IATA-max. quantity - Passenger: 75 kg

IATA-packing instructions - Cargo: 203

IATA-max. quantity - Cargo: 150 kg

ADN:

Special provisions: 190, 327, 344, 625

Limited quantity: 1 L

Excepted quantity: E0

Transport category: 2

Tunnel restriction code: d



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SECTION 15: Regulatory information

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

EU regulations

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles: Entry 3, Entry 40

Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control): No information available.

Directive 2004/42/EC on VOC in paints and varnishes: No information available.

DIRECTIVE 2012/18/EU (SEVESO III) on the control of major-accident hazards involving dangerous substances: E2 The product is not expected to be hazardous to the environment.

Additional information: P3b

Observe employment restrictions in accordance with Directive 94/33/EC on the protection of young workers or stricter national provisions, where applicable.

National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Phrase meaning

Flam. Aer. 1 - Flammable aerosols, hazard category 1

Skin Irrit. 2 - Skin irritation, hazard category 2

STOT SE 3 - narcosis - Specific Target Organ Toxicity — Single exposure, hazard category 3 - narcosis

Aquatic Chronic 2 - Hazardous to the aquatic environment — Chronic hazard category 2

Asp. Tox. 1 - Aspiration hazard, hazard category 1

Flam. Liq. 2 - Flammable liquids, hazard category 2

Press. Gas - Gases under pressure

H222 Extremely flammable aerosol.

H225 Highly flammable liquid and vapour.

H280 Contains gas under pressure; may explode if heated.

H304 May be fatal if swallowed and enters airways.

H315 Causes skin irritation.

H336 May cause drowsiness or dizziness.

H411 Toxic to aquatic life with long lasting effects.



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Other

Additional information

Disclaimer: The data contained in this safety data sheet are based on our current knowledge and experience and are given to the best of our knowledge and belief. It characterizes the product only with regard to safety requirements for handling, transport and disposal. The data do not describe the product's properties (tech. product specification). Neither should any agreed property nor the suitability of the product for any specific technical application be deduced from the data contained in this safety data sheet. Modifications on this document are not allowed. The data are not transferable to other products. In the case of mixing the product with other products or in the case of processing, the data in this safety data sheet are not necessarily valid for the new-made material. It is the responsibility of the recipient of the product to observe federal, state and local law. Please contact us to obtain up-to-date safety data sheets. This document was issued electronically and has no signature.