


SAFETY DATA SHEET

Revision Date: 20.10.2016

Print Date: 20.11.2017

SDS Number: 000000242318

Valvoline™ BRAKEFLUID DOT 5.1 BRAKE FLUID

Version: 3.0

VE58024

Conforms to EU Regulation 1907/2006/EC as amended. - SDSGHS_GB

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

Trade name : Valvoline™ BRAKEFLUID DOT 5.1
BRAKE FLUID

1.2 Relevant identified uses of the substance or mixture and uses advised against
1.3 Details of the supplier of the safety data sheet

Ellis Enterprises B.V., an affiliate of Valvoline
Wieldrechtseweg 39
3316 BG Dordrecht
Netherlands
+31 (0)78 654 3500 (in the Netherlands), or
contact your local CSR contact person

SDS@valvoline.com

1.4 Emergency telephone number

00-800-825-8654 / 001-859-202-3865, or contact
your local emergency telephone number at 112

Product Information

+31 (0)78 654 3500 (in the Netherlands), or
contact your local CSR contact person

SECTION 2: Hazards identification
2.1 Classification of the substance or mixture
Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2

H319: Causes serious eye irritation.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word : Warning

Hazard statements : H319 Causes serious eye irritation.

Precautionary statements : P101 If medical advice is needed, have product
container or label at hand.
P102 Keep out of reach of children.


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P103 Read label before use.

Prevention:
P280 Wear eye protection/ face protection.

Response:
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

2.3 Other hazards
Additional advice

No information available.

SECTION 3: Composition/information on ingredients
3.2 Mixtures
Hazardous components

Chemical name	CAS-No. EC-No. Registration number	Classification (REGULATION (EC) No 1272/2008)	Concentration (%)
Ethanol, 2-butoxy-, manufacture of, by- products from	161907-77-3 310-287-7	Eye Dam.1; H318	>= 25,00 - < 30,00
2-(2-(2- Butoxyethoxy)ethoxy)et hanol	143-22-6 205-592-6 01-2119475107-38-xxxx	Eye Dam.1; H318	>= 5,00 - < 10,00
1,1'-Iminodipropan-2-ol	110-97-4 203-820-9 01-2119475444-34-xxxx	Eye Irrit.2; H319	>= 2,50 - < 3,00
2-(2- Methoxyethoxy)ethanol	111-77-3 203-906-6	Repr.2; H361d	>= 0,50 - < 1,00

For explanation of abbreviations see section 16.

SECTION 4: First aid measures
4.1 Description of first aid measures

General advice : Move out of dangerous area.


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Call a POISON CENTRE or doctor/physician if exposed or you feel unwell.
 Show this safety data sheet to the doctor in attendance.
 Do not leave the victim unattended.

- If inhaled : If breathed in, move person into fresh air.
 If unconscious, place in recovery position and seek medical advice.
 If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
 Remove contact lenses.
 Protect unharmed eye.
- If swallowed : Obtain medical attention.
 Do not give milk or alcoholic beverages.
 Never give anything by mouth to an unconscious person.
 If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Signs and symptoms of exposure to this material through breathing, swallowing, and/or passage of the material through the skin may include:
 stomach or intestinal upset (nausea, vomiting, diarrhea)
 irritation (nose, throat, airways)
- Risks : Causes serious eye irritation.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : No hazards which require special first aid measures.

SECTION 5: Firefighting measures
5.1 Extinguishing media

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
 Water spray
 Foam
 Carbon dioxide (CO₂)
 Dry chemical


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Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : carbon dioxide and carbon monoxide
Nitrogen oxides (NOx)

5.3 Advice for firefighters

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

Specific extinguishing methods : Product is compatible with standard fire-fighting agents.

Further information : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures
6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Ensure adequate ventilation.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.
Comply with all applicable federal, state, and local regulations.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For further information see Section 8 and Section 13 of the safety data sheet.


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SECTION 7: Handling and storage
7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours/dust.
Do not smoke.
Container hazardous when empty.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
For personal protection see section 8.
Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Hygiene measures : Wash hands before breaks and at the end of workday. When using do not eat or drink. When using do not smoke.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep container tightly closed in a dry and well-ventilated place. Observe label precautions.

Other data : No decomposition if stored and applied as directed.

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
2-(2-Methoxyethoxy)ethanol	111-77-3	TWA	10 ppm 50,1 mg/m ³	2006/15/EC
		TWA	10 ppm 50,1 mg/m ³	GB EH40


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8.2 Exposure controls
Engineering measures

Provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

Eye protection : Wear chemical splash goggles when there is the potential for exposure of the eyes to liquid, vapor or mist.

Hand protection

Remarks : butyl-rubber Nitrile rubber

The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Skin and body protection : Wear as appropriate:
Impervious clothing
Safety shoes
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9: Physical and chemical properties
9.1 Information on basic physical and chemical properties

Appearance : liquid

Colour : yellow

Odour : characteristic

Odour Threshold : No data available

pH : 7 - 11,5

Melting point/range : < -50 °C

Boiling point/boiling range : > 260 °C

Flash point : > 120 °C

Method: ISO 2719

Evaporation rate : No data available

Flammability (solid, gas) : No data available


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Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	< 2 mbar No data available
Relative vapour density	:	No data available
Relative density	:	No data available
Density	:	ca. 1,065 g/cm ³ (25 °C)
Solubility(ies)		
Water solubility	:	soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	5 - 10 mm ² /s (20 °C) No data available
Oxidizing properties	:	No data available

9.2 Other information

No data available

SECTION 10: Stability and reactivity
10.1 Reactivity

No decomposition if stored and applied as directed.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Product will not undergo hazardous polymerization.

10.4 Conditions to avoid


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Conditions to avoid : excessive heat
Do not allow evaporation to dryness.

10.5 Incompatible materials

Materials to avoid : aluminum
Copper
galvanized metals
halogenated hydrocarbons
nitrites
Strong acids
Strong oxidizing agents
Zinc

10.6 Hazardous decomposition products

Hazardous decomposition products : Aldehydes
carbon dioxide and carbon monoxide
Nitrogen oxides (NO_x)
Organic acids
ketones

SECTION 11: Toxicological information
11.1 Information on toxicological effects

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

Acute toxicity

Not classified based on available information.

Components:

Ethanol, 2-butoxy-, manufacture of, by-products from

Acute oral toxicity : **LD50 (Rat): 2.630 mg/kg**
Remarks: Information given is based on data obtained from similar substances.

Acute dermal toxicity : **LD50 (Rabbit): 3.540 mg/kg**
Remarks: Information given is based on data obtained from similar substances.

Components:

2-(2-(2-Butoxyethoxy)ethoxy)ethanol

Acute oral toxicity : **LD50 (Rat): 5.300 mg/kg**

Acute dermal toxicity : **LD50 (Rabbit): 3.502 mg/kg**

Components:

1,1'-Iminodipropen-2-ol

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Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Assessment: No adverse effect has been observed in acute oral toxicity tests.

Acute dermal toxicity : LD50 (Rabbit): 8.000 mg/kg

Components:

2-(2-Methoxyethoxy)ethanol

Acute oral toxicity : LD50 (Mouse): > 5.288 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute inhalation toxicity : LC0 (Rat): > 1,2 mg/l
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): 9.404 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Not classified based on available information.

Product:

Remarks: May cause skin irritation in susceptible persons.

Components:

Ethanol, 2-butoxy-, manufacture of, by-products from

Result: Slight, transient irritation

Remarks: Information given is based on data obtained from similar substances.

2-(2-(2-Butoxyethoxy)ethoxy)ethanol

Result: No skin irritation

1,1'-Iminodipropan-2-ol

Result: No skin irritation

2-(2-Methoxyethoxy)ethanol

Species: Rabbit

Method: OECD Test Guideline 404

Result: No skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Method: OECD Test Guideline 405

Result: Eye irritation

Remarks: Expected based on components.

Remarks: Vapours may cause irritation to the eyes, respiratory system and the skin., Causes serious eye irritation.


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Components:

Ethanol, 2-butoxy-, manufacture of, by-products from

Result: **Corrosive**

2-(2-(2-Butoxyethoxy)ethoxy)ethanol

Result: **Corrosive**

1,1'-Iminodipropen-2-ol

Result: **Severely irritating to eyes**

2-(2-Methoxyethoxy)ethanol

Species: **Rabbit**Method: **OECD Test Guideline 405**Result: **Slight, transient irritation**
Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Components:

2-(2-Methoxyethoxy)ethanol

Test Type: **Maximisation Test**Species: **Guinea pig**Assessment: **Does not cause skin sensitisation.**Method: **OECD Test Guideline 406**
Germ cell mutagenicity

Not classified based on available information.

Components:

2-(2-Methoxyethoxy)ethanol

Genotoxicity in vitro

: Test Type: **Ames test**Test species: **Salmonella typhimurium**Metabolic activation: **with and without metabolic activation**Method: **OECD Test Guideline 471**Result: **negative**
Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

2-(2-Methoxyethoxy)ethanol

Reproductive toxicity -

Assessment

: **Some evidence of adverse effects on development, based on animal experiments.**
STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

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Aspiration toxicity

Not classified based on available information.

Further information**Product:**

Remarks: No data available

SECTION 12: Ecological information**12.1 Toxicity****Components:**

Ethanol, 2-butoxy-, manufacture of, by-products from

Toxicity to fish : **LC50 (Fish): > 1.800 mg/l**
 Exposure time: 96 h
 Test Type: **semi-static test**
 Method: **OECD Test Guideline 203**
 Remarks: **Information given is based on data obtained from similar substances.**

Toxicity to daphnia and other aquatic invertebrates : **EC50 (Daphnia magna (Water flea)): > 3.200 mg/l**
 Exposure time: 48 h
 Test Type: **static test**
 Method: **OECD Test Guideline 202**
 GLP: **yes**

Toxicity to algae : **ErC50 (Scenedesmus capricornutum (fresh water algae)): 2.490 mg/l**
 Exposure time: 72 h
 Test Type: **static test**
 Method: **OECD Test Guideline 201**
 GLP: **yes**

1,1'-Iminodipropan-2-ol

Toxicity to fish : **LC50 (Carassius auratus (goldfish)): 1.100 mg/l**
 Exposure time: 24 h
 Test Type: **static test**

2-(2-Methoxyethoxy)ethanol

Toxicity to fish : **LC50 (Pimephales promelas (fathead minnow)): 5.741 mg/l**
 Exposure time: 96 h
 Test Type: **static test**

LC50 (Bluegill (Lepomis macrochirus)): 7.500 mg/l
 Exposure time: 96 h
 Method: **Static**
 Remarks: **Mortality**

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Toxicity to daphnia and other aquatic invertebrates : **EC50 (Daphnia magna (Water flea)): 1.192 mg/l**
Exposure time: **48 h**
Test Type: **static test**

Toxicity to algae : **EC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l**
End point: **Biomass**
Exposure time: **96 h**
Test Type: **static test**
Method: **OECD Test Guideline 201**

12.2 Persistence and degradability**Components:**

Ethanol, 2-butoxy-, manufacture of, by-products from

Biodegradability : Result: **Readily biodegradable.**
Biodegradation: **76 %**
Exposure time: **28 d**

2-(2-Methoxyethoxy)ethanol

Biodegradability : Test Type: **aerobic**
Inoculum: **activated sludge**
Result: **Readily biodegradable.**
Biodegradation: **100 %**
Exposure time: **28 d**

12.3 Bioaccumulative potential**Components:**

Ethanol, 2-butoxy-, manufacture of, by-products from

Partition coefficient: n-octanol/water : log Pow: **0,436 (25,5 °C)**
pH: **6,6**

1,1'-Iminodipropan-2-ol

Partition coefficient: n-octanol/water : log Pow: **-0,82**

12.4 Mobility in soil


No data available

12.5 Results of PBT and vPvB assessment

Not relevant

12.6 Other adverse effects**Product:**

Additional ecological information : No data available

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Product : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
- Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number

ADR: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
RID: Not dangerous goods

14.2 UN proper shipping name


ADR: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
RID: Not dangerous goods

14.3 Transport hazard class(es)

ADR: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods
INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods
RID: Not dangerous goods

14.4 Packing group

ADR: Not dangerous goods
INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not dangerous goods

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INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not dangerous goods

INTERNATIONAL MARITIME DANGEROUS GOODS: Not dangerous goods

RID: Not dangerous goods

14.5 Environmental hazards

ADR: Not applicable

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO: Not applicable

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER: Not applicable

INTERNATIONAL MARITIME DANGEROUS GOODS: Not applicable

RID: Not applicable

: Not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Ship Type: Not applicable

Hazard code(s): Not applicable

Pollutant Category: Not applicable

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15: Regulatory information

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


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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : 2-(2-Methoxyethoxy)ethanol

REACH - List of substances subject to authorisation (Annex XIV) : 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

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Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

The components of this product are reported in the following inventories:

TSCA	: On TSCA Inventory
DSL	All components of this product are on the Canadian DSL
AICS	On the inventory, or in compliance with the inventory
ENCS	On the inventory, or in compliance with the inventory
KECI	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory
ISHL	Not in compliance with the inventory
PICCS	On the inventory, or in compliance with the inventory

Inventories

AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

15.2 Chemical safety assessment

No data available

SECTION 16: Other information

Further information

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Classification procedure:

H319 Causes serious eye irritation. On basis of test data.

Full text of H-Statements

H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H361d Suspected of damaging the unborn child.


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Other information : The information accumulated herein is believed to be accurate but is not warranted to be whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Valvoline's Environmental Health and Safety Department (+31 (0)78 654 3500).

Sources of key data used to compile the Safety Data Sheet

Valvoline internal data including own and sponsored test reports

The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.

List of abbreviations and acronyms that could be, but not necessarily are, used in this safety data sheet :

ACGIH : American Conference of Industrial Hygienists

BEI : Biological Exposure Index

CAS : Chemical Abstracts Service (Division of the American Chemical Society).

CMR : Carcinogenic, Mutagenic or Toxic for Reproduction

FG : Food grade

GHS : Globally Harmonized System of Classification and Labeling of Chemicals.

H-statement : Hazard Statement

IATA : International Air Transport Association.

IATA-DGR : Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

ICAO : International Civil Aviation Organization

ICAO-TI (ICAO) : Technical Instructions by the "International Civil Aviation Organization"

IMDG : International Maritime Code for Dangerous Goods

ISO : International Organization for Standardization

logPow : octanol-water partition coefficient

LCxx : Lethal Concentration, for xx percent of test population

LDxx : Lethal Dose, for xx percent of test population.

ICxx : Inhibitory Concentration for xx of a substance

Ecxx : Effective Concentration of xx

N.O.S.: Not Otherwise Specified

OECD : Organization for Economic Co-operation and Development

OEL : Occupational Exposure Limit

P-Statement : Precautionary Statement

PBT : Persistent , Bioaccumulative and Toxic

PPE : Personal Protective Equipment

STEL : Short-term exposure limit


STOT : Specific Target Organ Toxicity

TLV : Threshold Limit Value

TWA : Time-weighted average

vPvB : Very Persistent and Very Bioaccumulative

WEL : Workplace Exposure Level

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ABM : Water Hazard Class for the Netherlands
 ADR : Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADNR: Regulation for the Carriage of Dangerous Substances on the Rhine
 CLP : Classification, Labelling and Packaging
 CSA : Chemical Safety Assessment
 CSR : Chemical Safety Report
 DNEL : Derived No Effect Level.
 EINECS : European Inventory of Existing Commercial Chemical Substances.
 ELINCS : European List of Notified Chemical Substances
 PEC : Predicted Effect Concentration
 PEL : Permissible Exposure Limits
 PNEC : Predicted No Effect Concentration
 R-phrase : Risk phrase
 REACH : Registration, Evaluation, Authorisation and Restriction of Chemicals
 RID : Regulation Concerning the International Transport of Dangerous Goods by Rail
 S-phrase: Safety phrase
 WGK : German Water Hazard Class