

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 1 of 12
		Print date: 2/12/2019	

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING**1.1 Product identifier****Bavaria Welding Flux BF 3.5****Other means of identification:****Standard designation:** ISO 14174– S A AB 1 67 AC**1.2 Relevant identified uses of the substance or mixture and uses advised against****Use of the substance / mixture:**

Agglomerated Flux for Submerged Arc Welding with solid or flux-cored steel electrodes.

Relevant identified uses:

Product Categories [PC]

PC 38: Welding and soldering

1.3 Details of the supplier of the safety data sheet:**Supplier (manufacturer/importer/only representative/downstream user/distributor):****Bavaria Schweisstechnik GmbH**Wiesenweg 23
85716 Unterschleissheim
Germany**Telephone:** +49(0)89/3171035**Telefax:** +49(0)89/3171796**E-Mail:** bavaria@subarcflux.com**E-Mail (competent person):** msds@tuev-sued.de

TUV SUD Industrie Service GmbH - Environmental Service - Westendstrasse 199 - 80686 Munich - Germany

1.4 Emergency telephone number

+49 (0)89 / 5791 3031 (only available during office hours)

SECTION 2 HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272 / 2008 [CLP]:**

This article is classified as not hazardous according to regulation (EC) No. 1272 / 2008 [CLP].

2.2 Label elements**Labeling according to Regulation (EC) No. 1272 / 2008 [CLP]:**

According to EC directives or the corresponding national regulations the article does not have to be labeled.



SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 2 of 12
		Print date: 2/12/2019	

2.3 Other hazards

Adverse physicochemical effects:

No known significant effects or critical hazards.

Adverse human health effects and symptoms:

No known significant effects or critical hazards.

Additional information:

Inhaling of gases or fumes is to be avoided.

When welding Chromium- and/or Nickel/Cobalt-alloyed alloys and electrodes the fumes and vapour/gases that may be produced have to be thoroughly ventilated in the welding area and require local exhaust at the arc according to the corresponding safety standards

Adverse environmental effects:

No known significant effects or critical hazards.

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substance

Not applicable

3.2 Mixtures

Description:

The chemical composition of the flux is only a mixture of inorganic phases without organic substances.

Additional information:

According to ISO 14174 – standard „Classification of fluxes for submerged-arc welding “: fluxes for submerged-arc welding are granular fusible products of mineral origin, manufactured by various methods.

Agglomerated fluxes consist of finely milled and characteristically heat-treated natural minerals and metal alloys bonded with silicate waterglass to a uniform granular product in special manufacturing processes. These grains are baked at temperatures up to 900 °C. After cooling the flux is sieved to a granulometry over 0.1 mm but below 2.5 mm, packed and labelled.

According to ISO 14174 fluxes are classified by the characteristic chemical constituents. The welding flux **BF 3.5** is classified as a Aluminate-Basic (**AB**) flux type with the following limits of the characteristic chemical constituents:

Al₂O₃ + CaO + MgO min. 40 %; Al₂O₃ min. 20 %; CaF₂ max. 22 %.

Hazardous ingredients / Hazardous impurities / Stabilizers:




*) Silicate Binders

Full text of R-, H- and EUH-phrases: see section 16.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 3 of 12
		Print date: 2/12/2019	

Hazardous ingredients / Hazardous impurities / Stabilizers:

product identifiers	Substance name Classification according to Regulation (EC) No. 1272 / 2008 [CLP]	Concentration in %
CAS No.: 1309-48-4 EC No.: 215-171-9 REACH-No.: exempt	Magnesium oxide The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].	25 - 30
CAS No.: 1344-28-1 EC No.: 215-691-6 REACH-No.: 01-2119529248-35	Aluminium oxide The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].	18 - 23
CAS No.: 14808-60-7 EC No.: 238-878-4 REACH-No.: 01-2120770509-45	SiO2* The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].	17 - 22
CAS No.: 7789-75-5 EC No.: 232-188-7 REACH-No.: 01-2119491248-30	Calcium fluoride Substance with a Community workplace exposure limit.	13 - 16
CAS No.: 1313-13-9 EC No.: 215-202-6 REACH-No.: 01-2119452801-43	Manganese dioxide Acute Tox. 4, STOT RE 2   Warning H302-H332-H372	7 - 10
CAS No.: 1309-37-1 EC No.: 215-168-2 REACH-No.: exempt	Iron Oxide The substance is classified as not hazardous according to regulation (EC) No 1272/2008 [CLP].	2 - 4
CAS No.: 1313-59-3 EC No.: 215-208-9 REACH-No.: 01-2120759517-43	Sodium oxide Eye Dam. 1, STOT SE 3, Skin Irrit. 2  Danger H314	0 – 1,5

*) SiO2 is in the crystalline structure of the raw materials used to make the product

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 4 of 12
		Print date: 2/12/2019	

SECTION 4 FIRST AID MEASURES**4.1 Description of first aid measures****General information:**

In case of accident or indisposition, seek medical advice immediately. (Show directions for use or safety data sheet if possible). Employ first-aid techniques recommended by the National Ambulance Authorities.

In case of inhalation:

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. If experiencing respiratory symptoms: Call a doctor.

In case of skin contact:

After contact with skin, wash immediately with plenty of water and soap. In case of skin irritation, consult a physician.

After eye contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

After ingestion: Let water be drunk in little sips (dilution effect).

4.2 Most important symptoms and effects, both acute and delayed

– No data available –

4.3 Indication of any immediate medical attention and special treatment needed

– No data available –

SECTION 5 FIRE FIGHTING MEASURES**5.1 Extinguishing media**

Suitable extinguishing media: Extinguishing powder, sand, water spray.

Unsuitable extinguishing media: Full water jet.

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products: none

5.3 Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

5.4 Additional information

The product itself does not burn. Coordinate fire-fighting measures to the fire surroundings.

SECTION 6 ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****6.1.1 For non-emergency personnel**

Personal precautions: Use personal protection equipment.

6.1.2 For emergency responders

– No data available –

6.2 Environmental precautions

No special environmental measures necessary.

6.3 Methods and material for containment and cleaning up

For cleaning up:

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 5 of 12
		Print date: 2/12/2019	

Collect mechanically, placing in appropriate containers for disposal, or: Use approved industrial vacuum cleaner for removal.

6.4 Reference to other sections

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

6.5 Additional information

– No data available

SECTION 7 HANDLING AND STORAGE**7.1 Precautions for safe handling****Protective measures****Advice for safe handling:**

Avoid: Generation/-formation of dust. Use only in well-ventilated areas.

The fluxes are normally delivered on wooden pallets in 25 kg plastic PE-bags or specially coated Big-Bags (500-1250 kg) of PPL fabric and transportation must be done in a suitable manner. Plastic bags are shrink-wrapped in plastic foil or kept in dry cardboard or wooden boxes. Unprotected containers and flux packages must not be exposed to direct wetness, like snow or rain. Damaged containers must be repacked within one hour or otherwise be disposed of.

Fire prevent measures:

No special fire protection measures are necessary.

Advices on general occupational hygiene

Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500. Wash hands before breaks and after work. When using do not eat, drink, smoke, sniff.

7.2 Conditions for safe storage, including any incompatibilities**Packaging materials:**

Plastic packaging: PPL (Polypropylene), PE (Polyethylene).

Requirements for storage rooms and containers:

Keep container tightly closed. Keep container dry.

Further information on storage conditions:

A maximum of 2 pallets may be stapled onto each other.

7.3 Specific end use(s)**Recommendation:**

Submerged-arc welding flux acc. to ISO 14174 for SAW applications such as boiler construction, pipe welding and steel construction.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 6 of 12
		Print date: 2/12/2019	

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION
8.1 Control parameters
8.1.1 Occupational exposure limit values

Limit value type	Substance name	1) long-term occupational exposure limit value 2) short-term occupational exposure limit value 3) instantaneous value 4) monitoring and observation processes 5) remark
IOELV (EU)	Aluminium oxide CAS-Nr.: 1344-28-1	Not Listed
OSHA (US)	Aluminium oxide CAS-Nr.: 1344-28-1	1) 15 mg/m ³ 5 mg/m ³ 5) (inhalable fraction) (respirable fraction)
IOELV (EU) OSHA (US)	Calcium fluoride CAS No.: 7789-75-5	Not Listed
IOELV (EU)	SiO₂ * CAS No.: 14808-60-7	Not Listed
OSHA (US)	SiO₂ * CAS No.: 14808-60-7	1) mg/m ³ 30/(%silica+2) total dust 10/(%silica+2) respirable dust
IOELV (EU)	Iron Oxide CAS No.: 1309-37-1	Not Listed
OSHA (US)	Iron Oxide CAS No.: 1309-37-1	1) 15 mg/m ³ 5 mg/ m ³ total dust respirable dust 10 mg/ m ³ fume of respirable dust
IOELV (EU) OSHA (US)	Manganese dioxide CAS No.: 1313-13-9	Not Listed
IOELV (EU)	Magnesium oxide CAS No.: 1309-48-4	Not Listed
OSHA (US)	Magnesium oxide CAS No.: 1309-48-4	1) 15 mg/m ³ total dust

*) Crystalline silica is complex-bound to other substances

8.1.2 Biological limit values

– No data available –

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux **BF 3.5**

Version: 2

Revision date: **11/28/2018**

Page 7 of 12

Print date: 2/12/2019

8.2 Exposure controls

8.2.1 Appropriate engineering controls

See section 7. No additional measures necessary.

As shipped welding flux described in this data sheet is non-reactive, non-flammable, non-explosive and essentially non-hazardous until welded. However, during welding the relevant safety regulations have to be observed.

8.2.2 Personal protection equipment

Eye / face protection: Eye glasses with side protection.

Skin protection:

Hand protection: suitable gloves type: chromate-free leather or other heat-resistant materials.

Body protection: use industrial heat-resisting safety clothes, safety shoes.

Respiratory protection:

Respiratory protection necessary at: exceeding exposure limit values. If technical exhaust or ventilation measures are not possible or insufficient respiratory protection must be worn.

Suitable respiratory protection apparatus: filtering device (DIN EN 147).

8.2.3 Environmental exposure controls

The local and national waste and waste water disposal rules are to be observed. (Section 13: Disposal considerations / Section 15: regulatory information)

8.3 Additional information

The finely milled constituents are bonded to a uniform granular product, the formation of aerosols and fine dust particles is limited if the flux is properly handled.

The occupational exposure limit acc. to TRGS 900 for the general threshold limit value for dust of 10 mg/m³ -respirable- and 3 mg/m³ -alveolar- fraction is not reached during proper use of the flux.

Welding fumes from the use of this flux may contain fluorides and complex oxides of Aluminium, Magnesium, Silicon, Iron and Titanium whose exposure limits are lower than the 5 mg/m³ TLV for general welding fume.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 8 of 12
		Print date: 2/12/2019	

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES
9.1 Information on basic physical and chemical properties Appearance

Physical state: granulate
Colour: dark grey
Odour: odourless

Safety relevant basic data

		at °C	Method	Remark
pH value	not applicable			
Melting point/melting range	> 1300 °C			
Freezing point	not applicable			
Boiling temperature/boiling range	not applicable			
Decomposition temperature (°C)	not determined			
Flash point	not applicable			
Vapourization rate/evaporation rate	not applicable			
Ignition temperature (°C)	not determined			
Explosion limits (LEL, UEL)	not applicable			
Vapour pressure	not applicable			
Relative vapour density at 20 °C (air = 1)	not determined			
Density	not determined			
Bulk density	approx. 1000 kg / m ³			
Water solubility (g / L)	insoluble			
Partition coefficient n-octanol/water (log K_{ow})	not applicable			
Dynamic viscosity	not determined			
Kinematic viscosity	not applicable	40 °C		

9.2 Other information

– No data available –

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 9 of 12
		Print date: 2/12/2019	

SECTION 10 STABILITY AND REACTIVITY
10.1 Reactivity

No hazardous reactions known.

10.2 Chemical stability

The product is stable.

10.3 Possibility of hazardous reactions

No hazardous reactions known.

10.4 Conditions to avoid

No known significant effects or critical hazards.

10.5 Incompatible materials

No hazardous reactions known.

10.6 Hazardous decomposition products

No decomposition according to intended use.

SECTION 11 TOXICOLOGICAL INFORMATION
11.1 Information on toxicological effects:

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity:

Acute toxicity: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Skin corrosion/irritation:

based on available data, the classification criteria are not met

Serious eye damage/irritation:

based on available data, the classification criteria are not met

Respiratory/skin sensitization:

based on available data, the classification criteria are not met

Germ cell mutagenicity:

based on available data, the classification criteria are not met

Genotoxicity:

based on available data, the classification criteria are not met

Carcinogenicity:

based on available data, the classification criteria are not met

Repeated dose toxicity:

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:

based on available data, the classification criteria are not met

STOT-repeated exposure:

based on available data, the classification criteria are not met

Aspiration hazard:

based on available data, the classification criteria are not met

LD50 Oral:

based on available data, the classification criteria are not met

LD50 Dermal:

based on available data, the classification criteria are not met

LC50 Inhalation:

based on available data, the classification criteria are not met

Routes of exposure:

based on available data, the classification criteria are not met

Symptoms related to the physical, chemical and toxicological characteristics:

based on available data, the classification criteria are not met

Mixture versus substance Information:

based on available data, the classification criteria are not met

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 10 of 12
		Print date: 2/12/2019	

Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Interactive effects:

Toxicity in case of skin contact:

Absence of specific data:

Toxicity in case of eye contact

Mixtures:

Toxicity in case of ingestion:

based on available data, the classification criteria are not met
 based on available data, the classification criteria are not met
 based on available data, the classification criteria are not met
 based on available data, the classification criteria are not met
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SECTION 12 ECOLOGICAL INFORMATION

12.1 Toxicity Aquatic toxicity:

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

12.2 Persistence und degradability

Abiotic degradation:

Due to its low solubility in water the product is almost completely mechanically separated in biological sewage plants.

Biodegradation:

The methods for determining the biological degradability are not applicable to inorganic substances.

Additional information:

Readily eliminated from water.

12.3 Bioaccumulative potential

not applicable

12.4 Mobility in soil

not applicable.

12.5 Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT / vPvB criteria according to REACH, annex XIII.

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

List of proposed waste codes / waste designations in accordance with AVV

13.1.1 Product / Packaging disposal

Waste codes / waste designations according to EWC / AVV

Waste code product:

12 01 13	Welding waste
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Waste code packaging:

20 03 99	Municipal wastes not otherwise specified
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Waste treatment options

Appropriate disposal / product:

Dispose of waste according to applicable legislation.

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 11 of 12
		Print date: 2/12/2019	

Appropriate disposal / packaging:

Contaminated packaging must be completely emptied and can be re-used after proper cleaning.

13.2 Additional information

Flux and slag residuals are mineral constituents and therefore may also be used as filler in site-preparation or underground construction work.

SECTION 14 TRANSPORT INFORMATION

The product is not a dangerous good within the meaning of the IATA transport regulations for air freight.
 No dangerous good (not restricted) in sense of these transport regulations.

SECTION 15 REGULATORY INFORMATION

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture
 – No data available –

15.2 Chemical Safety Assessment
 Chemical safety assessments for this mixture were not carried out.

15.3 Additional information
 – No data available –

SECTION 16 OTHER INFORMATION

16.1 Indication of changes
 Adaptation to regulation CLP

16.2 Abbreviations and acronyms
 For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

16.3 Key literature references and sources for data
 REACH Dissemination

16.4 Classification for mixtures and used evaluation method according to regulation (EC) No. 1272 / 2008 [CLP]
Classification according to Regulation (EC) No. 1272 / 2008 [CLP]:
 This mixture is classified as not hazardous according to regulation (EC) No. 1272 / 2008 [CLP].

16.5 Relevant R-, H- and EUH- phrases (number und full text)

Hazard statements (H-phrases)	
H302	Harmful if swallowed
H315	Causes skin irritation
H318	Causes serious eye damage.
H319	Causes serious eye irritation
H332	Harmful if inhaled.
H335	May cause respiratory irritation
H372	Causes damage to organs through prolonged or repeated exposure (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

SAFETY DATA SHEET
according to Regulation (EC) No. 1907 / 2006 (REACH)

Welding Flux BF 3.5	Version: 2	Revision date: 11/28/2018	Page 12 of 12
		Print date: 2/12/2019	

16.6 Training advice

– No data available –

16.7 Additional information

The above information describes exclusively the safety requirements of the product and is based on our present day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

This Safety Data Sheet was prepared in cooperation with TUV SUD Industrie Service GmbH (see below), based on data from the supplier, who is named in section 1 and who is responsible for this document.

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