

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Page 1/8

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Version number 5.01 (replaces version 5.00)

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

- **1.1 Product identifier**
- **Trade name:** Bradford - Solution for protein determination
- **Article number:** A6932
- **Application of the substance / the mixture**  
Biochemistry  
Laboratory chemicals
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
AppliChem GmbH  
Ottoweg 4  
D-64291 Darmstadt  
Tel.: +49 (0)6151 93570  
Fax.: +49 (0)6151 935711  
msds@applichem.com
- **Further information obtainable from:** Dept. Compliance
- **1.4 Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**  
Met. Corr.1 H290 May be corrosive to metals.  
Skin Corr. 1B H314 Causes severe skin burns and eye damage.  
Eye Dam. 1 H318 Causes serious eye damage.
- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
The product is classified and labelled according to the GB CLP regulation.
- **Hazard pictograms**  
  
GHS05
- **Signal word** Danger
- **Hazard-determining components of labelling:**  
phosphoric acid
- **Hazard statements**  
H290 May be corrosive to metals.  
H314 Causes severe skin burns and eye damage.

(Contd. on page 2)

GB

**Trade name: Bradford - Solution for protein determination**

(Contd. of page 1)

· **Precautionary statements**

- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.  
 P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P310 Immediately call a POISON CENTER/doctor.  
 P321 Specific treatment (see on this label).  
 P405 Store locked up.  
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **2.3 Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.  
 · **vPvB:** Not applicable.

**SECTION 3: Composition/information on ingredients**

· **3.2 Mixtures**

· **Description:** aqueous solution

· **Dangerous components:**

CAS: 7664-38-2 EINECS: 231-633-2 Reg.nr.: 01-2119485924-24-XXXX	phosphoric acid Met. Corr.1, H290; Skin Corr. 1B, H314 Specific concentration limits: Skin Corr. 1B; H314: C ≥25 % Skin Irrit. 2; H315: 10 % ≤ C < 25 % Eye Irrit. 2; H319: 10 % ≤ C < 25 % Met. Corr.1; H290: C ≥ 5 %	≥5-<10%
CAS: 64-17-5 EINECS: 200-578-6 Reg.nr.: 01-2119457610-43-XXXX	ethanol Flam. Liq. 2, H225; Eye Irrit. 2, H319 Specific concentration limit: Eye Irrit. 2; H319: C ≥ 50 %	>4-≤5%
CAS: 78-93-3 EINECS: 201-159-0 Reg.nr.: 01-2119457290-43-XXXX	butanone Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336, EUH066	>0.1-≤1%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

**SECTION 4: First aid measures**

· **4.1 Description of first aid measures**

- **General information:** Involve doctor immediately.  
 · **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.  
 · **After skin contact:**  
 Call a doctor immediately.  
 Immediately wash with water and soap and rinse thoroughly.  
 Immediately remove any clothing soiled by the product.  
 · **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.  
 · **After swallowing:**  
 make victim drink water (maximum of 2 drinking glasses)  
 Call a doctor immediately.  
 · **4.2 Most important symptoms and effects, both acute and delayed**  
 No further relevant information available.

(Contd. on page 3)

Trade name: **Bradford - Solution for protein determination**

(Contd. of page 2)

- **4.3 Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## SECTION 5: Firefighting measures

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **5.2 Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide  
Sulphur oxides (SO<sub>x</sub>)  
Phosphorus oxides (e.g. P<sub>2</sub>O<sub>5</sub>)  
Non-combustible.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Contain escaping vapours with water.

## SECTION 6: Accidental release measures

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Avoid substance contact.  
Do not inhale steams/aerosols.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Use neutralising agent.  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Clean up affected area.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## \* SECTION 7: Handling and storage

- **7.1 Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Prevent formation of aerosols.
- **Information about fire - and explosion protection:** The product is not flammable.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Provide acid-resistant floor.
- **Information about storage in one common storage facility:** Store away from metals.
- **Further information about storage conditions:**  
Keep container tightly sealed.  
Open receptacle only under localised extractor facilities.  
Store under lock and key and with access restricted to technical experts or their assistants only.
- **Recommended storage temperature:** +2 - +8°C
- **Storage class:** 8 B

(Contd. on page 4)

Trade name: **Bradford - Solution for protein determination**

(Contd. of page 3)

· **7.3 Specific end use(s)** No further relevant information available.

## SECTION 8: Exposure controls/personal protection

### · 8.1 Control parameters

· **Ingredients with limit values that require monitoring at the workplace:**

#### **7664-38-2 phosphoric acid**

WEL	Short-term value: 2 mg/m <sup>3</sup> Long-term value: 1 mg/m <sup>3</sup>
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#### **64-17-5 ethanol**

WEL	Long-term value: 1920 mg/m <sup>3</sup> , 1000 ppm
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#### **78-93-3 butanone**

WEL	Short-term value: 899 mg/m <sup>3</sup> , 300 ppm Long-term value: 600 mg/m <sup>3</sup> , 200 ppm Sk, BMGV
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· **Ingredients with biological limit values:**

#### **78-93-3 butanone**

BMGV	70 µmol/L Medium: urine Sampling time: post shift Parameter: butan-2-one
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· **Additional information:** The lists valid during the making were used as basis.

### · 8.2 Exposure controls

· **Appropriate engineering controls** No further data; see item 7.

· **Individual protection measures, such as personal protective equipment**

· **General protective and hygienic measures:**

- Keep away from foodstuffs, beverages and feed.
- Immediately remove all soiled and contaminated clothing
- Wash hands before breaks and at the end of work.
- Avoid contact with the eyes and skin.

· **Respiratory protection:**

- In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- Use suitable respiratory protective device only when aerosol or mist is formed.

· **Recommended filter device for short term use:** Filter ABEK

· **Hand protection**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **For the permanent contact gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

(Contd. on page 5)

**Trade name: Bradford - Solution for protein determination**

(Contd. of page 4)

Value for the permeation: Level  $\geq$  480 min

· **As protection from splashes gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq$  0.11 mm

Value for the permeation: Level  $\geq$  480 min

· **Eye/face protection**



Gauze goggles

· **Body protection:**

Use protective suit.

Acid resistant protective clothing

## SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**

· **General Information**

· **Physical state**

Fluid

· **Colour:**

Brown

· **Odour:**

Odourless

· **Odour threshold:**

Not determined.

· **Melting point/freezing point:**

Undetermined.

· **Boiling point or initial boiling point and boiling range**

Undetermined.

· **Flammability**

Not applicable.

· **Lower and upper explosion limit**

· **Lower:**

Not determined.

· **Upper:**

Not determined.

· **Flash point:**

Not applicable.

· **Decomposition temperature:**

Not determined.

· **pH at 20 °C**

<2

· **Viscosity:**

· **Kinematic viscosity**

Not determined.

· **Dynamic:**

Not determined.

· **Solubility**

· **water:**

Fully miscible.

· **Partition coefficient n-octanol/water (log value)**

Not determined.

· **Vapour pressure at 20 °C:**

23 hPa

· **Density and/or relative density**

· **Density at 20 °C:**

~1 g/cm<sup>3</sup>

· **Relative density**

Not determined.

· **Vapour density**

Not determined.

· **9.2 Other information**

· **Appearance:**

· **Form:**

Fluid

· **Important information on protection of health and environment, and on safety.**

· **Auto-ignition temperature:**

Product is not selfigniting.

· **Explosive properties:**

Product does not present an explosion hazard.

· **Solvent content:**

· **Organic solvents:**

5.0 %

· **Water:**

$\geq$ 86.5 %

· **VOC (EC)**

5.00 %

· **Solids content:**

8.5 %

(Contd. on page 6)

Trade name: Bradford - Solution for protein determination

(Contd. of page 5)

· <b>Change in condition</b>	
· <b>Evaporation rate</b>	Not determined.
· <b>Information with regard to physical hazard classes</b>	
· <b>Explosives</b>	Void
· <b>Flammable gases</b>	Void
· <b>Aerosols</b>	Void
· <b>Oxidising gases</b>	Void
· <b>Gases under pressure</b>	Void
· <b>Flammable liquids</b>	Void
· <b>Flammable solids</b>	Void
· <b>Self-reactive substances and mixtures</b>	Void
· <b>Pyrophoric liquids</b>	Void
· <b>Pyrophoric solids</b>	Void
· <b>Self-heating substances and mixtures</b>	Void
· <b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
· <b>Oxidising liquids</b>	Void
· <b>Oxidising solids</b>	Void
· <b>Organic peroxides</b>	Void
· <b>Corrosive to metals</b>	May be corrosive to metals.
· <b>Desensitised explosives</b>	Void

## SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**
- **Thermal decomposition / conditions to be avoided:**  
No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions** No dangerous reactions known.
- **10.4 Conditions to avoid** No further relevant information available.
- **10.5 Incompatible materials:** No further relevant information available.
- **10.6 Hazardous decomposition products:** In the event of fire: See chapter 5

## SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity**
- **LD/LC50 values relevant for classification:**  
Quantitative data on the toxicological effect of this product are not available.
- **Skin corrosion/irritation** Causes severe skin burns and eye damage.
- **Serious eye damage/irritation** Causes serious eye damage.
- **After inhalation:** Strong caustic effect on skin and mucous membranes.
- **11.2 Information on other hazards**

### · Endocrine disrupting properties

78-93-3 | butanone

List II

## SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.

(Contd. on page 7)

Trade name: Bradford - Solution for protein determination

(Contd. of page 6)

- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Endocrine disrupting properties**  
For information on endocrine disrupting properties see section 11.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water  
Must not reach sewage water or drainage ditch undiluted or unneutralised.  
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values.  
A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Chemicals must be disposed of in compliance with the respective national regulations.  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:**  
Disposal must be made according to official regulations.  
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

### SECTION 14: Transport information

- |   |                 |
|---|-----------------|
| · <b>14.1 UN number or ID number</b><br>· <b>ADR, ADN, IMDG, IATA</b>                       | Void            |
| · <b>14.2 UN proper shipping name</b><br>· <b>ADR, ADN, IMDG, IATA</b>                      | Void            |
| · <b>14.3 Transport hazard class(es)</b><br>· <b>ADR, ADN, IMDG, IATA</b><br>· <b>Class</b> | Void            |
| · <b>14.4 Packing group</b><br>· <b>ADR, IMDG, IATA</b>                                     | Void            |
| · <b>14.5 Environmental hazards:</b>  | Not applicable. |
| · <b>14.6 Special precautions for user</b>  | Not applicable. |
| · <b>14.7 Maritime transport in bulk according to IMO instruments</b>                       | Not applicable. |
| · <b>UN "Model Regulation":</b>   | Void            |

### SECTION 15: Regulatory information

- **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Directive 2012/18/EU**
- **Named dangerous substances - ANNEX I** None of the ingredients is listed.

(Contd. on page 8)



**Trade name: Bradford - Solution for protein determination**

(Contd. of page 7)

- **National regulations:**
- **Other regulations, limitations and prohibitive regulations**
- **Substances of very high concern (SVHC) according to REACH, Article 57**

None of the ingredients is listed.

- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

### · **Relevant phrases**

- H225 Highly flammable liquid and vapour.
- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
- EUH066 Repeated exposure may cause skin dryness or cracking.

### · **Department issuing SDS:** Dept. Compliance

### · **Abbreviations and acronyms:**

- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- IATA: International Air Transport Association
- GHS: Globally Harmonised System of Classification and Labelling of Chemicals
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- VOC: Volatile Organic Compounds (USA, EU)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- SVHC: Substances of Very High Concern
- vPvB: very Persistent and very Bioaccumulative
- Flam. Liq. 2: Flammable liquids – Category 2
- Met. Corr. 1: Corrosive to metals – Category 1
- Skin Corr. 1B: Skin corrosion/irritation – Category 1B
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

- **\* Data compared to the previous version altered.**