

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

Printing date 17.10.2018

Version number 1

Revision: 17.10.2018

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

- **1.1 Product identifier**
- **Trade name:** WAKOL Applicator 90
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
No further relevant information available.
- **Application of the substance / the mixture** Lithium Ion Battery
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
WAKOL GmbH  
Bottenbacher Str. 30  
D-66954 Pirmasens  
info@wakol.com  
+49 6331 8001 0
- **Informing department:**  
Product safety department.  
msds@wakol.de
- **1.4 Emergency telephone number:**  
Emergency CONTACT (24-Hour-Number):  
GBK GmbH +49 (0)6132-84463

**SECTION 2: Hazards identification**

- **2.1 Classification of the substance or mixture**  
This product is considered an article under the REACH Regulation.
- **Classification according to Regulation (EC) No 1272/2008**  
The product is not classified, according to the CLP regulation.

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- **2.2 Label elements**  
Within the meaning of the REACH-Regulation:  
This mixture is not considered a hazard when used in a manner which is consistent with the labeled directions.  
This mixture is considered an article in its final form.  
This MSDS covers the hazards and information of the material contained within the article, in the event the product is damaged or mishandled.  
Under normal conditions of use these chemicals are not anticipated to be available for exposure. Substances within this product may be reactive with water, air, and are flammable if released.  
Thermal decomposition of this product may generate corrosive and toxic vapors.  
In particular Hydrofluoric acid may be released in case of open cells.  
Hydrofluoric acid can cause severe chemical burns, is toxic by all routes of exposure, and is very reactive.  
See section 2.3 for hazards related to the ingredients encased within this product.  
Avoid extremely high or low temperatures, keep away from incompatible materials.  
Do not open, puncture, damage, or incinerate container.  
Keep out of reach of children.  
Store batteries in a dry and cool place!
- **Labelling according to Regulation (EC) No 1272/2008** Void
- **Hazard pictograms** Void
- **Signal word** Void
- **Hazard statements** Void
- **2.3 Other hazards**  
H301 - Toxic if swallowed.  
H314 - Causes severe skin burns and eye damage.  
H317 - May cause an allergic skin reaction.  
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H350 - May cause cancer.  
H372 - Causes damage to organs through prolonged or repeated exposure.  
H410 - Very toxic to aquatic life with long lasting effects.

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- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

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

· **3.2 Chemical characterisation: Mixtures**

· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 1313-13-9	manganese dioxide, ore of Chapter 26	10-<20%
EINECS: 215-202-6	☠ STOT RE 2, H373; ☠ Aquatic Chronic 2, H411; ☠ Acute Tox. 4, H302; Acute Tox. 4, H332	
CAS: 1313-99-1	nickel monoxide	10-<20%
EINECS: 215-215-7	☠ Carc. 1A, H350i; STOT RE 1, H372; ☠ Skin Sens. 1, H317; Aquatic Chronic 4, H413	
CAS: 1307-96-6	cobalt oxide	10-<20%
EINECS: 215-154-6	☠ Acute Tox. 3, H301; ☠ Resp. Sens. 1, H334; Carc. 2, H351; ☠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ☠ Skin Sens. 1, H317	
CAS: 21324-40-3	Lithiumhexafluorophosphat	5%
EINECS: 244-334-7	☠ Acute Tox. 3, H301; ☠ STOT RE 1, H372; ☠ Skin Corr. 1A, H314; Eye Dam. 1, H318	
CAS: 7440-50-8	copper	2.5-<10%
EINECS: 231-159-6	substance with a Community workplace exposure limit	
CAS: 7429-90-5	aluminium	2.5-<10%
EINECS: 231-072-3	substance with a Community workplace exposure limit	

· **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**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· **After inhalation**

Exposure to the contents of an open or damaged battery:

Supply fresh air; consult doctor in case of complaints.

· **After skin contact**

Exposure to the contents of an open or damaged battery:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

· **After eye contact**

Exposure to the contents of an open or damaged battery:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

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- **After swallowing**  
Exposure to the contents of an open or damaged battery:  
Rinse out mouth. Call a doctor immediately.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **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>, sand, extinguishing powder. Do not use water.  
Use fire extinguishing methods suitable to surrounding conditions.
- **For safety reasons unsuitable extinguishing agents** Water
- **5.2 Special hazards arising from the substance or mixture** No further relevant information available.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information** Cool endangered receptacles with water spray.

**SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Keep away from ignition sources.
- **6.2 Environmental precautions:**  
Do not allow product to reach sewage system or any water course.  
Inform respective authorities in case of seepage into water course or sewage system.
- **6.3 Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Do not flush with water or aqueous cleansing agents
- **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** Keep receptacles tightly sealed.
- **Information about protection against explosions and fires:** Keep ignition sources away - Do not smoke.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and containers:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **7.3 Specific end use(s)** No further relevant information available.

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**SECTION 8: Exposure controls/personal protection**

· **Additional information about design of technical systems:** No further data; see item 7.

· **8.1 Control parameters**

· **Components with critical values that require monitoring at the workplace:**

**1313-13-9 manganese dioxide, ore of Chapter 26**

WEL Long-term value: 0.2\* 0.05\*\* mg/m<sup>3</sup>  
as Mn \*inhalable fraction \*\*respirable fraction

**1313-99-1 nickel monoxide**

WEL Long-term value: 0.5 mg/m<sup>3</sup>  
as Ni; Sk; Carc

**1307-96-6 cobalt oxide**

WEL Long-term value: 0.1 mg/m<sup>3</sup>  
as Co; Carc, Sen

**7440-50-8 copper**

WEL Short-term value: 2\*\* mg/m<sup>3</sup>  
Long-term value: 0.2\* 1\*\* mg/m<sup>3</sup>  
\*fume \*\*dusts and mists (as Cu)

**7429-90-5 aluminium**

WEL Long-term value: 10\* 4\*\* mg/m<sup>3</sup>  
\*inhalable dust \*\*respirable dust

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**

· **Personal protective equipment**

· **General protective and hygienic measures** Wash hands before breaks and at the end of work.

· **Breathing equipment:**

Not required under normal conditions of use.

When handling damaged batteries:

Use a NIOSH-approved self-contained breathing apparatus whenever exposure may exceed established Occupational Exposure Limits.

· **Protection of hands:**

Not required under normal conditions of use.

When handling damaged batteries:

Wear chemically resistant protective gloves.

· **Eye protection:**

Not required under normal conditions of use.

When handling damaged batteries:

Chemical goggles or safety glasses.

· **Body protection:**

Not required under normal conditions of use.

When handling damaged batteries:

Wear suitable protective clothing.

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**SECTION 9: Physical and chemical properties**

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

· **General Information**

· **Appearance:**

**Form:** Solid  
    **Colour:** According to product specification

· **Smell:** Odourless

· **Odour threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

**Melting point/freezing point:** Undetermined.

**Initial boiling point and boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Inflammability (solid, gaseous)** Contact with water liberates extremely flammable gases.

· **Decomposition temperature:** Not determined.

· **Self-inflammability:** Product is not selfigniting.

· **Explosive properties:** Product does not present an explosion hazard.

· **Critical values for explosion:**

**Lower:** Not determined.

**Upper:** Not determined.

· **Steam pressure:** Not applicable.

· **Density** Not determined.

· **Relative density** Not determined.

· **Vapour density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with**

**Water:** Insoluble.

· **Organic solvents:** well soluble

· **Partition coefficient: n-octanol/water:** Not determined.

· **Viscosity:**

**dynamic:** Not applicable.

**kinematic:** Not applicable.

· **9.2 Other information** No further relevant information available.

**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.

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· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.**SECTION 11: Toxicological information**

- **11.1 Information on toxicological effects**
- **Acute toxicity** Based on available data, the classification criteria are not met.
- **Primary irritant effect:**
- **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 or skin sensitisation** Based on available data, the classification criteria are not met.
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **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** 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.

**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.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**  
Water danger class 3 (German Regulation) (Self-assessment): extremely hazardous for water  
Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
Danger to drinking water if even extremely small quantities leak into the ground.  
Also poisonous for fish and plankton in water bodies.  
Very toxic for aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

**SECTION 13: Disposal considerations**

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.  
Must be specially treated adhering to official regulations.
- **European waste catalogue**  

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16 00 00 WASTES NOT OTHERWISE SPECIFIED IN THE LIST  
16 06 00 batteries and accumulators

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16 06 05 other batteries and accumulators

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

**SECTION 14: Transport information**

- **14.1 UN-Number** UN3481
- **ADR, IMDG, IATA**
- **14.2 UN proper shipping name** Void
- **ADR** LITHIUM ION BATTERIES PACKED WITH EQUIPMENT
- **IMDG, IATA**
- **14.3 Transport hazard class(es)**
- **ADR, IMDG, IATA**



- **Class** 9 Miscellaneous dangerous substances and articles.
- **Label** 9
- **14.4 Packing group** Void
- **ADR, IMDG, IATA** Void
- **14.5 Environmental hazards:** Not applicable.
- **14.6 Special precautions for user** Warning: Miscellaneous dangerous substances and articles.
- **EMS Number:** F-A,S-I
- **Stowage Category** A
- **Stowage Code** SW19 For batteries transported in accordance with SP 376 or SP 377 Category C, unless transported on a short international voyage.
- **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code** Not applicable.

· **Transport/Additional information:**

- **ADR** Transportation according to special provision 188
- **Limited quantities (LQ)** 0
- **Excepted quantities (EQ)** Code: E0  
Not permitted as Excepted Quantity
- **Transport category** 2
- **Tunnel restriction code** E

· **IMDG** Transportation according to special provision 188

· **IATA** Transportation according to special provision 188

· **UN "Model Regulation":** 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.

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- **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 27
- **National regulations**
- **VOC:**
- **VOC (EU) 0.0 g/l**
- **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**

- H301 Toxic if swallowed.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H350i May cause cancer by inhalation.
- H351 Suspected of causing cancer.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H373 May cause damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.
- H413 May cause long lasting harmful effects to aquatic life.

· **Abbreviations and acronyms:**

- ADR: Accord européen sur le transport 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)
- MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- Acute Tox. 3: Acute toxicity – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Corr. 1A: Skin corrosion/irritation – Category 1A
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Resp. Sens. 1: Respiratory sensitisation – Category 1
- Skin Sens. 1: Skin sensitisation – Category 1
- Carc. 1A: Carcinogenicity – Category 1A
- Carc. 2: Carcinogenicity – Category 2
- STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
- STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
- Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
- Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
- Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
- Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4