

**Material Safety Data Sheet**  
**according to decree (EC) No. 1907 / 2006**

Revision: 2

Revision Date: 22.01.10 RL

**1. Chemical product and company identification**

**Product name:**  
**LiWa AktiBond**

**Application of the product:**  
Bonding Liquid

**Manufacturer:**  
**Willmann + Pein GmbH**

**Street:**  
Schusterring 35

**Zip-Code / Town**  
25355 Barmstedt

**Contact for technical Information:**  
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**Emergency Information (24 hours)**  
Dr. Wolfgang Willmann  
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**2. Hazard Identification**  
**Hazard-Denotation**



Xi Irritating



F Inflammable

**Special Hazard-Indications for Human and Environment:**

The product is to be labelled due to the analysis of the "General rating principles for preparations in EC" in last modified version.

**R 11** Inflammable.

**R 36/37/38** Irritating to eyes, respiratory system and skin

**R 43** Sensitation through skin-contact possible.

**Classification-System:**

The classification is equal to the actual EC-lists, but is supplemented with data of technical literature and data of the company.

**3. Composition/Information on Ingredients**  
**Chemical characterization**

**Description:**  
Bonding-liquid based on methylmethacrylate

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<b>Hazardous Ingredients:</b>			
CAS: 80-62-6	Methyl	Xi, F; 11-36-	75-90%
EINECS: 607-035-00-6	metthacrylate or methacrylic-acid- ester	37-38, 43	

**Additional Indications:**

The accent of the mentioned risk-advice is to see at chapter 16.

**4. First-Aid-Measures****General indications:**

Take off polluted clothes immediately. Medical attendance is necessary at symptoms which evidently are the result of the exposure from the product to skin, eyes or inhalation of its vapours

**After Inhalation:**

supply fresh air, in case of disorders contact physician.

**After skin contact:**

Wash with plenty of soap and water

**After eye contact:**

Rinse with plenty of water while eyes are opened. In case of continuing disorders contact a physician.

**After swallowing:**

Immediately contact a physician.

**5. Fire-Fighting-Measures****Suitable extinguishing media:**

Waterspray-stream, Foam, Dry Powder, Carbon dioxide

**For safety reasons not suitable extinguishing media:**

Full water-stream

**Spezial hazard caused by the substance, it's burning products or accuring gases:**

Self-contained breathing apparatus

Full protection clothes

**Special protective equipment:**

So only stay in danger-zone while wearing chemical-protective equipment and self-contained breathing apparatus.

**Additional Advice:**

Cool endangered container with water

**6. Accidental release measures****Personal precautions:**

Take note of adequate aeration.

Keep away from source of ignition.

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Wear personal protective clothing.

Take note of explosion-control.

**Environmental precautions:**

Do not allow to enter drains, surface water or ground-water.

**Methods for cleaning/asorption:**

Pick up with liquid-binding material (for example: sand, diatomaceous earth, acid-binding-material or universal-binding material)

Dispose of contaminated material as waste according to point 13.

Larger quantities should be picked up mechanically (pump off)

**7. Handling and Storage****Handling:****Indications for safety handling:**

Keep container tightly closed. Take care of adequate aeration/sution unit at the working place.

**Indications for fire- and explosion-prevention:**

Keep source of ignitions away - do not smoke. Take measures against static discharges. Hot product developes burnable vapours. Vapours can build a mixture which can explode. Do not spray against flame or glowing body. Use explosion-protectiv units/armatures and non sparkling tools.

**Storing:****Demands to stockrooms and containers:**

Do only store in original container. To only fill container up to 90% because oxygen (air) is needed for stabilisation. In case of large storing-containers take care of adequate supply of oxygen (air) to guarantee the stability.

**Indications for combined-storage:**

Not required.

**Further details for storage-conditions:**

Protect against light. Maximum storage temperature: 30°

**8. Exposure Controls/Personal Protection****Additional advice for composition of technical constructions:**

Not further details, see point 7.

<b>Constituent parts with working-place oriented, to be controlled limit values:</b>	
<b>80-62-6 Methyl-methacrylate</b>	
MAK	210 mg/m <sup>3</sup> , 50 ml/m <sup>3</sup>
	H, Y; DFG

**Additional advice:**

At preparation valid lists are based.

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**Personal protective:****General protection- and hygienic measures:**

Avoid contact with eyes and skin. Take off dirty and soaked cloth immediately. Store protective clothing separately.

The conventional precautionary measures while contact with chemicals are to be observed.

**Breath protection:**

At temporary or small exposure use breathing filtration unit; in case of intensive or longer-termed exposition use self-contained breathing apparatus: Filter A

**Hand-protection:**

Protective gloves made of rubber

**Eye protection:**

Use good closing goggles

Face protection

**Skin- and Body-protection:**

If larger quantities are handled wear Boots made of Rubber and Pinafore made of rubber.

**Protection-glove-material:**

The choice of a proper protection is not only dependant of the material but also of further attributes and different from manufacturer to manufacturer. Because the product is a mixture of several materials the constancy of the protection-glove-material is not predictable and must be proofed before using.

**Penetration-time of the Protection-Glove-Material:**

The exact penetration-time is to be known from the manufacturer and to be adhered.

**For permanent contact of maximal 15 minutes Protection-Gloves out of the following Materials are practible:**

natural rubber (latex)

**9. Physical and chemical Properties****General data**

<b>Form:</b>	Liquid
<b>Colour:</b>	Colourless
<b>Odour:</b>	ester-like
<b>pH-Value:</b>	not applicable

Safety relevant data:

**Change of state**

**Melting point/area:** -48°

**Boiling point/area:** 100,3°C

**Flashpoint:** 10°C                   DIN 51755

**Ignition point:** 430°C           DIN 1794

**Self-inflammable:** The product is not self-inflammable.

**Explosion-risk:** The product is not explosive, but a building of explosion-risk steams/air-mixtures is possible.

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**Explosion-limit:****Lower:** 2,1 Vol %**Upper:** 12,5Vol%**Vapour-pressure at 20°C:** 40 hPa at 20°**Density at 20°C:** 0,94 g/cm<sup>3</sup> at 20°**Solubility/miscibility****with water:** not or rather sparse miscible**Contents of solubilities:****Water:** 15,9g / l at 25°**Organic solubility:** miscible with lots of organic solvents**Viscosity****dynamic** 0,6mPas at 20° (Brookfield)**10. Stability and Reactivity****Conditions to avoid:**

No decomposition if used and stored conventionally.

**Hazardous reactions:**

Reactions with reducing agents. Reactions with peroxides and other radical former.

Polymerization under development of heat. In the presence of heavy-metal-ion polymerization under development of heat is possible.

**Hazardous decomposition-products:**

None if handled conventional

**11. Toxicological information****Acute toxicity:****Classification-relevant LD/LC50 values:**

Components	form	value	species
Methylmethacrylate	oral (OECD 401)	>5000 mg/kg	rat
	Inhalative	7093 ppm / 4h	rat
	Dermal	>5000mg/kg	rabbit

**Primary toxicity:****At skin:** No toxicity (rabbit, FDA Draize-Test 24h)**At eyes:** not Irritating (rabbit, Draize-Test 24h)**Sensitization:** In Sensitisation-tests at guinea-pigs with and without adjuvants  
Results have been positive and negative. Source: Literature**Subacute up to cronicallly toxicity:****Chronically Toxicity**

Way of application: inhale

Dose 250 - 1000 ppm

Application-interval 6h / d, 5 d/w

Application-duration 2 a

Species: Rat

Source: Literature

**Diagnostic** Damage of nasal mucosa, throat and lung; degeneration of the olfactory Epithelium

Dose: 500 – 1000 ppm

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Application-Interval:	6 h / d, 5 d/w
Application-duration:	2 a
Species:	Mouse
Source:	Literature
Diagnostic:	Damage of nasal mucosa, throat and lung; degeneration of the olfactory Epithelium

**Experiences at humans:**

Allergic reactions have been observed at humans with different incidence (symptoms: headache, eye-irritation, skin-affection)

Source: Literature

**Additional toxicological Advices:**

**Mutagenicity:**No mutagenicity

Dos./Conc.: 10.000 µg /Plate, metabonically acivation: +/-

Species/test-system: Salmonella thyphimurium, Methode: Ames-Test

Source: Literature

mutagen

Metabonically acivation: +/-

Species/test-system: Mouse Lymphoma L 5178 Y TK+/-cells

Methode: Mouse Lymphome-test

Source: Literature

Slight increasement of the SCEs.

Metabonically acivation: +/-, Species/test-system: CHO cells

Methode SCE-test

Source: Literature

No incresament of the SCE-rate to the cytotoxicological concentration.

Species/test-system: Humanlymphocyten, methode: SCE-test

Source: Literature

No increasement of digits from Mikronuclei.

Way of Applications: oral, Dos./conc.: A) 4520 mg/kg, B) 1130 mg/kg

Application-intervall: A) 1 Dose, B) 4 Dose, Species/test-system: Mouse

Methode: Mikronukleus-Test / OECD 474

Source: Literature

No mutagenicity

Way of application: inhalative, application-intervall: 6 h/d

Application duration: 5d, Species/testsystem: CD-1 mouse (male)

Methode: Dominant letal Test

Source: Literature

**Other details:**

Teratogenicity:

Animal-experimental no indication of reproduction-toxical effects have been observed.

Way of application: inhale

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Dose: 2028 ppm

Duration of application: 6 – 15 d gest.

Specie Rat

Methode: OECD 414

Source: Literature

Carcinogenic:

Not carcinogen in inhalation- and feeding-studys at rats, mice and dogs.

Source: Literature

Avoid skin- and eye-contact as well as inhale of product-vapours.

**Kinetic of the toxic reaction:**

According the new Material Safety Data Sheet according to REACH, specifications about kinetic of the toxic reaction, metabolism of the substance and allocation of the substance in the human body must be mentioned at this place. Data for this is not available .

**Experience of the practice:**

No data existing

**Further detail:**

The product is to be handled with the usual care when handling chemicals. The product is to be labelled.

**Additional toxicological advices:**

Based on the Analysis of the broadly categorization-rules of the EC for compositions in final valid version the products features following dangers: Irritating

**12. Ecological information****General data:**

Water-hazardous-class (calculated accord. VwVwS): Slightly water-dangerous

Do not attain into ground-water, water-bodies or sewer-sytem if not undiluted.

**Details for elimination (Persistence and degradability):**

Biodegradability: 30,7 %

Duration of experiment: 28 d

Methode: OECD 301 C

Biodegradability: &gt; 95 %

Methode: Zahn-Wellens-Test

Source: Literature

The product is according to the criteria of OECD not readily biodegradable, but potentially biodegradable (inherently biodegradable).

**Ecotoxic effects:**

Fish toxicity: LC50: &gt; 79 mg/l – NOEC: 40 mg/l

Duration of exposition: 96 h

Species: Oncorhynchus mykiss, rainbow trout

Methode: OECD 203 / ISO 7346 / EEC 84 / 449 V, C1

Source: Literature

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Water organism:

Algae-toxicity:

A) EC3: 37 mg/l, B) EC50: 170 mg/l

Species: A) Scenedesmus quadricauda, b) Selenastrum capricornutum

Methode: A) DIN 38412 T. 9, B) OECD 201 / ISO 8692 / EEC 88 / 302 / V, C

Source: Literature

Bacteria-toxicity:

ECO: 100 mg/l

Species: Pseudomonas putida

Daphnia toxicity: EC50: 69 mg/l

Duration of exposition: 48h

Methode: OECD 202 / ISO 6341 / EEC 84 / 449 / V, C2

Mobility: no data existing

**Further details to ecology:**

Do not allow product to reach ground water or sewage system.

Not not allow to attain into ground-water, waterbodies or canalisation.

Not not allow to attain into the soil.

**Bioakkumulation potential:**

No data available

**Effect of the determination of the PTB- and vPvB-Report:**

Endocrine disruption potential

If the material causes hormonal effects or prevents them is unknown.

**13. Disposal considerations****Product:****Recommendation:**

Dont dispose together with domestic-waste. Do not drain into sewer-system.

Diosposal key according to AVV Regulation

<b>European Waste Catalogue</b>	
18 01 06	Chemicals, made of, or consisting hazardous materials

**Uncleaned Packagings:****Recommendation:** Dispose according to the offical rules.**Packagings:**

Packages that are not contaminated can be recycled



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**14. Transport informations/rules****Road transport/ADR, RID und GGVS/GGVE (cross-border/national):**

ADR/RID-GGVS/E class: 3 flammable liquid materials  
 Digit/letter: 3b  
 Kemler-rate: 339  
 UN-No.: 1247  
 Name of the material: Methyl-methacrylate, monomer, stabilised

**Inland-navigation-transport, ADN, ADNR**

ADN/R-class: 3  
 Digit/letter : 3b  
 Name of the material: UN 1247 Methyl-methacrylate, monomer, stabilised

**Sea transport IMDG, GGVSea**

IMDG/GGVSea-class: 3.2  
 UN-No: 1247  
 Packaging-group: II  
 Correct technical name: Methyl-methacrylate, monomer, inhibited

**Air transport, ICAO-TI and IATA-DGR**

ICAO/IATA-class: 3  
 UN/ID-No: 1247  
 Packaging-group: II  
 Correct technical name: Methyl-methacrylate, monomer, inhibited

**15. Regulatory Information****Marking according to EC-Rules:**

The product has to be labelled and marked according to the EC-Rules/GefStoffV

**Code letter and hazard-denotation:****Xi** Irritating**F** InflammableHazardous components for labelling : **Methylmethacrylate****R-Phrases:****11** Inflammabile.**36/37/38** Irritating to eyes, respiratory system and skin**43** Sensitisation through skin-contact possible**S-Phrases:****2** Keep out of the reach from children**9** Store container at a good aerated place**16** Store away from ignition source – Do not smoke.**29** Do not empty into drains**33** Arrange measures against electrostatical charge.**National Rules:****Technical Direction Air:**

class	contingent
	%
II	75-90

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National rules Austria:

Classification according to the chemical law 1996 BGBL 53/1997 and the chemical regulation BGBL 208/1989 to the legal edition

Identify with the EU-classification

Take not of Employee-protection-law BGBL 450/1994

Classification to VbF: AI

**Water-Hazardous-Class:** WGK 1 (categorization per list: VwVwS): Slightly water dangerous

## 16. Other information

### Relevant S-Phrases

**11** Inflammable.

**36/37/38** Irritation to eyes, respiratory system and skin

**43** Sensitisation through skin-contact possible

### Further applicable EG Guidelines

Guideline for preparation (1999/45/EC), at last changed by the guideline 2006/8/EC.

Substance Guideline (67/548/EWG), at last changed by the guideline 2006/121 EC.

REACH-Guideline (EC) No. 1907/2006

### Manufacturer's suggested application restriction:

For use of dental technicians only

### Department issuing MSDS:

Dr. Wolfgang Willmann (Phone: +49 (0) 41 23 – 9228 0)

### Additional Information:

Origin: <sup>1</sup> <http://www.baua.de>

<sup>2</sup> <http://www.arbeitssicherheit.de>

### Changes compared to the last version

Assimilation according REACH-Regulation (EC) No. 1907/2006

Some of the information presented and conclusions drawn herein are from sources other than direct test-data on the product itself.

The contents and format of this MSDS are in accordance with EEC Commission (EC) No. 1907 / 2006.

### Disclaimer of Liability

The information in this MSDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness.

The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge.

For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

This MSDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS information may not be applicable.

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**Safety Data Sheet certifying division**

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