

**SAP Order No.:** 136 4581

**Product description:** 6200 0007 (L200N) is an Ag air-drying conductive lacquer (phthalate free) for a large number of applications. It can be used in all cases where excellent electrically conductive layers are required (plastics, papers, wood, glasses, ceramics, metals, etc.)

**Working conditions:** The application of the paste is recommended as follows:

**Redispersion:** Please ensure that the paste is carefully homogenized before use. We recommend to use an electrical shaker or propeller stirrer at approx. 300 rpm for 10 min.

**Thinner:** This paste has a ready-to-use viscosity. If viscosity adjustment is necessary, please use our thinner 6810 0222.

**Application:** Paste can be applied by brush, spray gun or dipping.

**Drying:** 30 mins at 20 °C, Air or  
10 mins at 80 °C, Air forced oven or  
5 mins at 150 °C, Air forced oven  
Drying at any temperature up to 150 °C is possible.

**Storage conditions:** To avoid sedimentation of the solids and to prevent ageing of the paste, we recommend storage conditions between 4 – 20 °C. If longer storage than 12 months is necessary, we strongly recommend to store cool between 4 – 8 °C.

Product properties	Methods	Data
Silver content	At 800 °C, 10 minutes	45.0 ± 0.2 %
Viscosity	Flow cup - system, Din 53211 Ø 3mm at 25 °C	30 – 35 sec. Run out time
Resistivity		10 - 40 mΩ /square; 10µm thickness

**Ferro GmbH**  
Electronic Material Systems

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# SAFETY DATA SHEET



according to Regulation (EC) No. 1907/2006

62000007 Ag paste L200N

9562000007

specification	2063856	Revision date	12.08.2009
Version	1.0	Print Date	24.01.2011
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## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

### Product information

material No. : 1364581

Trade name : 9562000007  
62000007 Ag paste L200N

Company : Ferro GmbH  
Electronic Material Systems

Telephone  
Telefax

Emergency telephone  
E-mail address

Use of the Substance/Preparation : Metallo-ceramic coating suited for firing, for the decoration of glass and ceramics.

## 2. HAZARDS IDENTIFICATION

Highly flammable.  
Vapours may cause drowsiness and dizziness.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Chemical nature

Product contains:  
precious metal  
glycol ether/-acetate  
carbohydrate/(derivative of) cellulose  
alcohol  
aldehyde/ketone  
carbonic acid/ester/anhydride

### Information on ingredients/Hazardous components

• <b>silver</b>		Concentration	30% - 50%
CAS-No.	7440-22-4	EC-No.	231-131-3
• <b>1-ethoxypropan-2-ol</b>		Concentration	20% - 30%
CAS-No.	52125-53-8, 1569-02-4	EC-No.	216-374-5
Symbol(s)		R-phrased(s)	R10, R67
• <b>ethanol</b>		Concentration	12,5% - 20%
CAS-No.	64-17-5	EC-No.	200-578-6
Symbol(s)	F	R-phrased(s)	R11
• <b>acetone</b>		Concentration	5% - 7%
CAS-No.	67-64-1	EC-No.	200-662-2
Symbol(s)	F, Xi	R-phrased(s)	R11, R36, R66, R67

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• ethyl acetate		Concentration	1% - 3%
CAS-No.	141-78-6	EC-No.	205-500-4
Symbol(s)	F, Xi	R-phrase(s)	R11, R36, R66, R67

See chapter 16 for text of risk phrases

## 4. FIRST AID MEASURES

### General advice

Bring affected person out of danger area. Place person on side in stable position if unconscious. Employ mouth-to-mouth resuscitation if breathing ceases. Remove contaminated or saturated clothing.

### Inhalation

Take affected persons out into the fresh air.

### Skin contact

Wash off immediately with soap and plenty of water. Remove contaminated or saturated clothing.

### Eye contact

Immediately flush eye(s) with plenty of water.

### Ingestion

Have patient drink plenty of water in small sips.

### Notes to physician

No own experience available.

## 5. FIRE-FIGHTING MEASURES

### Suitable extinguishing media

Water (spray jet), mist, special quenching powder, quenching foam (use large amount of foam as it will be partially destroyed), carbon dioxide.

### Extinguishing media which shall not be used for safety reasons

High volume water jet

### Specific hazards during fire fighting

When heated, formation of explosive vapour/air mixtures. May be released in case of fire: flammable smouldering gases.

### Special protective equipment for fire-fighters

Employ protective equipment commonly used in the event of fire.

### Further information

In case of fire, remove the endangered containers and bring to a safe place, if this can be done safely.

Water used to extinguish fire should not enter drainage systems, soil, or stretches of water. Ensure there are sufficient retaining facilities for water used to extinguish fire. Contaminated fire-extinguishing water must be disposed of in accordance with the regulations issued by the appropriate local authorities.

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Ensure adequate ventilation.  
Remove all sources of ignition.  
Wear personal protective equipment; see section 8.

### Environmental precautions

Avoid penetration into drainage system or in rooms situated at a lower level because of danger of explosion.  
Prevent penetration into soil, stretches of water and drainage systems.

### Methods for cleaning up

Absorb with liquid-binding material (e.g. inert absorbent kieselguhruniversal binder) pick up.

### Additional advice

Dispose of contaminated material as waste in accordance with section 13.

## 7. HANDLING AND STORAGE

### Handling

#### Safe handling advice

Do not breathe in vapours or aerosols.  
Keep away from sources of ignition - No smoking.

#### Advice on protection against fire and explosion

Take measures to prevent the build up of electrostatic charge.  
Highly volatile substances may be released during processing; therefore avoid sources of ignition.

### Storage

#### Requirements for storage areas and containers

Fumes may be released in closed storage rooms or during processing. Store in a dry place at room temperature.  
Store in cool place.

#### Further information

Product is slightly water-pollutive. Observe the national and local regulations concerning handling and storage.

#### Advice on common storage

No materials to be especially mentioned.

#### German storage class

3 A (Classification by producer in accordance with VCI scheme)

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

#### • silver

CAS-No.	7440-22-4	EC-No.	231-131-3
Control parameters	0,10 mg/m <sup>3</sup> (total dust)		AGW (Germany)

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## • 1-ethoxypropan-2-ol

CAS-No. 52125-53-8, 1569-02-4 EC-No. 216-374-5  
50,00 ml/m<sup>3</sup>  
220,00 mg/m<sup>3</sup>  
AGW (Germany)  
remarks: H

## • ethanol

CAS-No. 64-17-5 EC-No. 200-578-6  
500,00 ml/m<sup>3</sup>  
960,00 mg/m<sup>3</sup>  
AGW (Germany)

## • acetone

CAS-No. 67-64-1 EC-No. 200-662-2  
500,00 ml/m<sup>3</sup>  
1.200,00 mg/m<sup>3</sup>  
AGW (Germany)

## • ethyl acetate

CAS-No. 141-78-6 EC-No. 205-500-4  
400,00 ml/m<sup>3</sup>  
1.500,00 mg/m<sup>3</sup>  
AGW (Germany)

## Engineering measures

If possible, use material transfer/filling, metering and blending plants that are closed.  
Take precautionary measures against static discharges. Earthing of equipment.  
Eventual aspiration in case of solvent fumes. Technical protection measures have always priority over personal protection equipment.

## Occupational exposure controls

### Personal protective equipment

#### Respiratory protection

Ensure suitable suction/aeration at the work place and with operational machinery.

If workplace exposure limit is exceeded apply Respirator with brown A-type filter.

#### Hand protection

Wear protective gloves made of the following materials: nitrile rubber.

#### Eye protection

wear basket-shaped glasses or safety goggles with side-shields.

#### Skin and body protection

When handling larger quantities: rubber apron, plastic apron.

Safety shoes

#### Hygiene measures

Wash hands before breaks and at the end of workday.

#### Protective measures

Handle in accordance with good industrial hygiene and safety practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid

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Colour silver  
Odour characteristic

## Safety data

physical state liquid

Flash point 12 °C DIN 51755 Part 1

Lower explosion limit 1,3 %(V)

Upper explosion limit 19 %(V)

Vapour pressure > 1.100 - 1.750 hPa (50 °C)

Density 1,44 g/cm<sup>3</sup> (20 °C)

Water solubility soluble

## 10. STABILITY AND REACTIVITY

Conditions to avoid No dangerous reaction known under conditions of normal use.

Materials to avoid Strong oxidizing agents

Hazardous decomposition products none known

## 11. TOXICOLOGICAL INFORMATION

Skin irritation not known

Eye irritation Vapour during processing may be irritating to the respiratory tract and to the eyes.

Sensitisation not known

No results of animal experiments with the product available.

### Acute oral toxicity

ethanol LD50 rat: 6.200,00 mg/kg  
acetone LD50 rat: 5.800,00 mg/kg  
ethyl acetate LD50 rat: 5.620,00 mg/kg

### Acute inhalation toxicity

ethanol LC50 rat: > 8.000,00 mg/l / 4 h  
acetone LC50 rat: 76,00 mg/l / 4 h  
ethyl acetate LC50 rat: 1.600,00 mg/l / 8 h

### Acute dermal toxicity

ethanol LD50 rabbit: > 20.000,00 mg/kg  
acetone LD50 rabbit: 20.000,00 mg/kg  
ethyl acetate LD50 rabbit: > 18.000,00 mg/kg

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**12. ECOLOGICAL INFORMATION****Persistence and degradability**

Biodegradability	no data available
Physico-chemical removability	no data available

**Ecotoxicity effects**

Specific information for this product is not available.

**Toxicity to fish**

ethanol	LC50 Fish: 8.140,00 mg/l / 48 h
acetone	LC50 Fish: 8.300,00 mg/l / 96 h
ethyl acetate	LC50 Fish: 270,00 mg/l

**Toxicity to daphnia**

ethanol	EC50 Daphnia: > 9.268,00 mg/l / 48 h
acetone	EC50 Daphnia: 12.600,00 mg/l / 48 h
ethyl acetate	EC50 Daphnia: 2.306,00 mg/l / 24 h

**13. DISPOSAL CONSIDERATIONS****Product**

Do not contaminate ponds, waterways or ditches with chemical or used container.  
In agreement with the waste code must be determined regional waste disposal authority or company.  
Dispose of as special waste in compliance with local and national regulations.  
Do not dispose of waste into sewer.

**Uncleaned packaging**

If there is product residue in the emptied container, follow directions for handling on the container's label.  
Dispose of as unused product.

**14. TRANSPORT INFORMATION****Land transport ADR/RID/GGVSE (Germany)**

Class	3
Code	F1
Packaging group	II
orange warning plate	33 / 1263
Description of the goods (Technical name)	1263 PAINT (SP 640C)

**Sea transport IMDG-Code/GGVSee**

Class	3
UN-Number	1263
Packaging group	II
Proper technical name (Proper shipping name)	PAINT

**Air transport ICAO-TI/IATA-DGR**

Class	3
UN-Number	1263

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Packaging group II  
 Proper technical name (Proper shipping name)  
 Paint

**15. REGULATORY INFORMATION****Labelling according to EC Directives**

statutory basis/list 1999/45/EC

**Symbol(s)** F Highly flammable**R-phrase(s)** R11 Highly flammable.  
R67 Vapours may cause drowsiness and dizziness.**S-phrase(s)** S 9 Keep container in a well-ventilated place.  
S16 Keep away from sources of ignition - No smoking.  
S33 Take precautionary measures against static discharges.  
S60 This material and its container must be disposed of as hazardous waste.**Major Accident Hazard Legislation** 96/82/EC listing: Update: 2003 Highly flammable (7b)**National legislation (Germany)**Water contaminating class (Germany) WGK 1 slightly water endangering  
Update: VVWS A4

TA Luft List (Germany)	Class	I	II	III	IV
	organic	0,0 %	0,0 %	0,0 %	
	carcinogenic	0,0 %	0,0 %	0,0 %	
	inorganic-dust-like	0,0 %	0,0 %	0,0 %	
	inorganic-gaseous	0,0 %	0,0 %	0,0 %	0,0 %

Other regulations The employment limitations under the regulations to the protection from hazardous materials of pregnant women and young mothers guideline and the protection of young persons act are to be observed.

**16. OTHER INFORMATION****Risk phrase (R phrase) texts**• **1-ethoxypropan-2-ol**R10 Flammable.  
R67 Vapours may cause drowsiness and dizziness.• **ethanol**

R11 Highly flammable.

• **acetone**R11 Highly flammable.  
R36 Irritating to eyes.  
R66 Repeated exposure may cause skin dryness or cracking.



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- R67 Vapours may cause drowsiness and dizziness.
- **ethyl acetate**
  - R11 Highly flammable.
  - R36 Irritating to eyes.
  - R66 Repeated exposure may cause skin dryness or cracking.
  - R67 Vapours may cause drowsiness and dizziness.

## Further information

Data sheet producing department:  
Ferro US-PS Telephone: +49 (0)69 27116-605

Changes since the last version will be highlighted in the margin. This version replaces all previous versions.

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