

# Safety Data Sheet

## Copper Remover - C2181

SDS Revision Date:

05/24/2017

### 1. Identification

#### 1.1. Product identifier

**Product Identity** Copper Remover - C2181  
**Alternate Names** Copper Remover - C2181

**1.2. Relevant identified uses of the substance or mixture and uses advised against**  
**Intended use** Commercial mirroring.

#### 1.3. Details of the supplier of the safety data sheet

**Company Name** Angel Gilding  
1945 Gardner Road  
Broadview IL 60155 USA

#### Emergency

**24 hour Emergency Telephone No.** 708-383-3340  
**Customer Service: Angel Gilding** 708-383-3340

### 2. Hazard(s) identification

#### 2.1. Classification of the substance or mixture

Acute Tox. 5;H303	May be harmful if swallowed. (Not adopted by US OSHA)
Skin Corr. 1B;H314	Causes severe skin burns and eye damage.
Eye Dam. 1;H318	Causes serious eye damage.
Skin Sens. 1;H317	May cause an allergic skin reaction.
Resp. Sens. 1;H334	May cause allergy or asthma symptoms of breathing difficulties if inhaled.
STOT SE 3;H335	May cause respiratory irritation.

#### 2.2. Label elements



**Danger**

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H303 May be harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H334 May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

### [Prevention]:

P261 Avoid breathing dust / fume / gas / mist / vapors / spray.

P264 Wash thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P272 Contaminated work clothing should not be allowed out of the workplace.

P280 Wear protective gloves / eye protection / face protection.

### [Response]:

P301+310 IF SWALLOWED: Immediately call a POISON CENTER or doctor / physician.

P302+352 IF ON SKIN: Wash with plenty of soap and water.

P303+361+353 IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.

P304+312 IF INHALED: Call a POISON CENTER or doctor / physician if you feel unwell.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.

P321 Specific treatment (see information on this label).

P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P333+313 If skin irritation or a rash occurs: Get medical advice / attention.

P341 If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.

P342+311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor / physician.

P363 Wash contaminated clothing before reuse.

### [Storage]:

P403+233 Store in a well ventilated place. Keep container tightly closed.

P405 Store locked up.

### [Disposal]:

P501 Dispose of contents / container in accordance with local / national regulations.

## 3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Ammonium hydroxide CAS Number: 0001336-21-6	10 - 25	Skin Corr. 1B;H314 Acute Tox. 4;H302 STOT SE 3;H335 Aquatic Acute 1;H400	[1]

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Ammonium persulphate CAS Number: 0007727-54-0	5 - 10	Ox. Sol. 3;H272 Acute Tox. 4;H302 Eye Irrit. 2;H319 STOT SE 3;H335 Skin Irrit. 2;H315 Resp. Sens. 1;H334 Skin Sens. 1;H317	[1]
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In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

[1] Substance classified with a health or environmental hazard.

[2] Substance with a workplace exposure limit.

[3] PBT-substance or vPvB-substance.

\*The full texts of the phrases are shown in Section 16.

### 4. First aid measures

#### 4.1. Description of first aid measures

<b>General</b>	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
<b>Inhalation</b>	Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
<b>Eyes</b>	Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
<b>Skin</b>	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
<b>Ingestion</b>	If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

#### 4.2. Most important symptoms and effects, both acute and delayed

<b>Overview</b>	<p>Inhalation: May irritate the mucous membranes. May cause lung edema. Symptoms may include sore throat, shortness of breath, inflammation of nasal passages, coughing, and wheezing. Any exposure may cause an allergic reaction. Asthma-like symptoms and life-threatening shock may result. Vapors and mists cause irritation to the respiratory tract. Higher concentrations can cause burns, pulmonary edema and death. Brief exposure to 5000 ppm can be fatal.</p> <p>Ingestion: Corrosive and Toxic. May produce abdominal pain, nausea and vomiting. May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse. Ingestion of as little as 3-4 mL may be fatal.</p> <p>Skin Contact: Corrosive. May cause skin burns.</p> <p>Eye Contact: May cause severe irritation and pain. Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness.</p> <p>Chronic Exposure: Prolonged skin contact may cause an allergic reaction with dermatitis. Repeated exposure may cause damage to the tissues of the mucous membranes, upper respiratory tract, eyes and skin.</p> <p>Aggravation of Pre-existing Conditions: Persons with impaired respiratory function or pre-existing eye disorders may be more susceptible to the effects of this material. See section 2 for further details.</p>
<b>Inhalation</b>	May cause respiratory irritation. May cause allergy or asthma symptoms of breathing difficulties if inhaled.

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<b>Eyes</b>	Causes serious eye damage.
<b>Skin</b>	May cause an allergic skin reaction. Causes severe skin burns and eye damage.
<b>Ingestion</b>	May be harmful if swallowed.

### 5. Fire-fighting measures

#### 5.1. Extinguishing media

Use any means suitable for extinguishing surrounding fire. Use any means suitable for extinguishing surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

#### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition: Decomposes to form oxygen and ozone. Burning may produce nitrogen oxides, sulfur oxides, and sulfuric acid.

Avoid breathing dust / fume / gas / mist / vapors / spray.

#### 5.3. Advice for fire-fighters

Material is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Heating or contact with water releases oxygen which may intensify combustion in an existing fire.

Explosion: An explosion hazard when mixed with finely powdered organic matter, metal powder, or reducing agents.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Sealed containers may rupture when heated.

**ERG Guide No.** 154

### 6. Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

Put on appropriate personal protective equipment (see section 8).

#### 6.2. Environmental precautions

Do not allow spills to enter drains or waterways.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

#### 6.3. Methods and material for containment and cleaning up

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container. Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8.

Contain and recover liquid when possible. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as acetic, hydrochloric or sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal.

US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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### 7. Handling and storage

#### 7.1. Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

See section 2 for further details. - [Prevention]:

#### 7.2. Conditions for safe storage, including any incompatibilities

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Separate from combustibles, organic or other readily oxidizable materials. Avoid storage on wood floors. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

Incompatible materials: Reducing agents, organic material, sodium peroxide and powdered metals especially aluminum.

See section 2 for further details. - [Storage]:

#### 7.3. Specific end use(s)

No data available.

### 8. Exposure controls and personal protection

#### 8.1. Control parameters

CAS No.	Ingredient	Exposure	
		Source	Value
0001336-21-6	Ammonium hydroxide	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit
0007727-54-0	Ammonium persulphate	OSHA	No Established Limit
		ACGIH	No Established Limit
		NIOSH	No Established Limit
		Supplier	No Established Limit

#### 8.2. Exposure controls

##### Respiratory

For conditions of use where exposure to dust or mist is apparent and engineering controls are not feasible, a particulate respirator (NIOSH type N95 or better filters) may be worn. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

##### Eyes

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

##### Skin

Wear PVC or rubber gloves to keep skin contact to a minimum. Refer to the manufacturer's recommendations regarding the suitability of any gloves used.

##### Engineering Controls

Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to

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maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

**Other Work Practices** Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

### 9. Physical and chemical properties

<b>Appearance</b>	Colorless Liquid
<b>Odor</b>	Ammonia
<b>Odor threshold</b>	Not determined
<b>pH</b>	14
<b>Melting point / freezing point</b>	0 °C
<b>Initial boiling point and boiling range</b>	100 °C
<b>Flash Point</b>	Not Measured
<b>Evaporation rate (Ether = 1)</b>	Not Measured
<b>Flammability (solid, gas)</b>	Not Applicable
<b>Upper/lower flammability or explosive limits</b>	<b>Lower Explosive Limit: 16</b> <b>Upper Explosive Limit: 25</b>
<b>Vapor pressure (Pa)</b>	Not Measured
<b>Vapor Density</b>	Not Measured
<b>Specific Gravity</b>	Not Measured
<b>Solubility in Water</b>	Complete
<b>Partition coefficient n-octanol/water (Log Kow)</b>	Not Measured
<b>Auto-ignition temperature</b>	651°C (1204°F)
<b>Decomposition temperature</b>	Not Measured
<b>Viscosity (cSt)</b>	Not Measured
<b>Density</b>	1 (g cm-3)

#### 9.2. Other information

No other relevant information.

### 10. Stability and reactivity

#### 10.1. Reactivity

Hazardous Polymerization will not occur.

#### 10.2. Chemical stability

Stability decreases in solution.

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### 10.3. Possibility of hazardous reactions

No data available.

### 10.4. Conditions to avoid

Combustible materials and incompatibles.

### 10.5. Incompatible materials

Reducing agents, organic material, sodium peroxide and powdered metals especially aluminum.

### 10.6. Hazardous decomposition products

Decomposes to form oxygen and ozone. Burning may produce nitrogen oxides, sulfur oxides, and sulfuric acid.

## 11. Toxicological information

### Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Ammonium hydroxide - (1336-21-6)	350.00, Rat - Category: 4	No data available	No data available	No data available	No data available
Ammonium persulphate - (7727-54-0)	700.00, Rat - Category: 4	>2,000.00, Rat - Category: 5	No data available	2.95, Rat - Category: 4	No data available

### Carcinogen Data

CAS No.	Ingredient	Source	Value
0001336-21-6	Ammonium hydroxide	OSHA	Regulated Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
0007727-54-0	Ammonium persulphate	OSHA	Regulated Carcinogen: No
		NTP	Known: No; Suspected: No
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;

Classification	Category	Hazard Description
Acute toxicity (oral)	5	May be harmful if swallowed. (Not adopted by US OSHA)
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	1B	Causes severe skin burns and eye damage.
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	1	May cause allergy or asthma symptoms of breathing difficulties if inhaled.
Skin sensitization	1	May cause an allergic skin reaction.

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Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	3	May cause respiratory irritation.
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

## 12. Ecological information

### 12.1. Toxicity

Toxic to aquatic life

#### Aquatic Ecotoxicity

Product: 24 Hr LC50 rainbow trout: 0.008 mg/L;

96 Hr LC50 fathead minnow: 8.2 mg/L;

48 Hr LC50 bluegill: 0.024 mg/L;

48 Hr EC50 water flea: 0.66 mg/L

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Ammonium hydroxide - (1336-21-6)	0.16, Oncorhynchus mykiss	32.00, Daphnia magna	Not Available
Ammonium persulphate - (7727-54-0)	76.30, Oncorhynchus mykiss	120.00, Daphnia pulicaria	136.00 (96 hr), Phaeodactylum tricornutum

### 12.2. Persistence and degradability

There is no data available on the preparation itself.

### 12.3. Bioaccumulative potential

Not Measured

### 12.4. Mobility in soil

No data available.

### 12.5. Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

### 12.6. Other adverse effects

No data available.

## 13. Disposal considerations

### 13.1. Waste treatment methods

Observe all federal, state and local regulations when disposing of this substance.



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### 14. Transport information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
14.1. UN number	UN2672	UN2672	UN2672
14.2. UN proper shipping name	UN2672, Ammonia solution, 8, III	Ammonia solution	Ammonia solution
14.3. Transport hazard class(es)	DOT Hazard Class: 8	IMDG: 8 Sub Class: Not Applicable	Air Class: 8
14.4. Packing group	III	III	III
14.5. Environmental hazards			
IMDG	Marine Pollutant: No;		
14.6. Special precautions for user	No further information		

### 15. Regulatory information

<b>Regulatory Overview</b>	The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.
<b>Toxic Substance Control Act ( TSCA)</b>	All components of this material are either listed or exempt from listing on the TSCA Inventory.
<b>WHMIS 1988 Classification</b>	D2A E
<b>US EPA Tier II Hazards</b>	<b>Fire:</b> No <b>Sudden Release of Pressure:</b> No <b>Reactive:</b> No <b>Immediate (Acute):</b> Yes <b>Delayed (Chronic):</b> No

**EPCRA 302 Extremely Hazardous:**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

**EPCRA 313 Toxic Chemicals:**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

**Proposition 65 - Carcinogens (>0.0%):**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

**Proposition 65 - Developmental Toxins (>0.0%):**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

**Proposition 65 - Female Repro Toxins (>0.0%):**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

**Proposition 65 - Male Repro Toxins (>0.0%):**

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

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### 16. Other information

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The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H334 May cause allergic or asthmatic symptoms or breathing difficulties if inhaled.

H335 May cause respiratory irritation.

H400 Very toxic to aquatic life.

**IMPORTANT NOTE:** This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or any process. Final determination of suitability of any material is the sole responsibility of the user.

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