

**MSDS (Material Safety Data Sheet)
Copper Reducer - C2065**

1		Product Identification	
	1	Manufacturer:	
		1 Name:	Angelgilding.com
		2 Street Address:	619 S. Clarence Ave
		3 City, State, and Zip:	Oak Park, IL 60304-1303
		4 24-hour Emergency Number	(708) 383-3340
	2	Product Code(s):	Copper Reducer - C2065
	3	Preparer:	
		1 Name:	M. G. King
		2 Phone Number:	(708) 383-3340
		3 Revision Information:	5/25/2008
2		Composition/Information on Ingredients	
		Per Ingredient:	
		1 Synonyms:	Formaldehyde, formalin
		2 CAS Id:	50-00-0
		3 Formula:	HCHO in water
		4 Formula Weight:	30.03
		5 Percent:	19
		6 Hazardous:	
		Per Ingredient:	
		1 Synonyms:	Methanol, methyl alcohol
		2 CAS Id:	
		3 Formula:	CH3OH in water
		4 Formula Weight:	
		5 Percent:	5
		6 Hazardous:	
3		Hazards Identification	
	1	Overview:	POISON! DANGER! SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. VAPOR HARMFUL. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. STRONG SENSITIZER. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR.
	2	SAF-T-DATA Ratings:	
		1 Health Rating:	3 - Severe (Poison)
		2 Flammability Rating:	2 - Moderate
		3 Reactivity Rating:	2 - Moderate
		4 Contact Rating:	3 - Severe (Corrosive)
		5 Protective Equipment:	GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
		6 Storage Color Code:	Red (Flammable)
	3	Potential Health Effects:	

MSDS (Material Safety Data Sheet)

Copper Reducer - C2065

		1	Inhalation:	The perception of formaldehyde by odor and eye irritation becomes less sensitive with time as one adapts to formaldehyde. This can lead to overexposure if a worker is relying on formaldehyde's warning properties to alert him or her to the potential for exposure. May cause sore throat, coughing, and shortness of breath. Causes irritation and sensitization of the respiratory tract. Concentrations of 25 to 30 ppm cause severe respiratory tract injury leading to pulmonary edema and pneumonitis. May be fatal in high concentrations.
		2	Ingestion:	Can cause severe abdominal pain, violent vomiting, headache, and diarrhea. Larger doses may produce decreased body temperature, pain in the digestive tract, shallow respiration, weak irregular pulse, unconsciousness and death. Methanol component affects the optic nerve and may cause blindness.
		3	Skin Contact:	Toxic. May cause irritation to skin with redness, pain, and possibly burns. Skin absorption may occur with symptoms paralleling those from ingestion. Formaldehyde is a severe skin irritant and sensitizer. Contact causes white discoloration, smarting, cracking and scaling.
		4	Eye Contact:	Vapors cause irritation to the eyes with redness, pain, and blurred vision. Higher concentrations or splashes may cause irreversible eye damage.
		5	Chronic Exposure:	Frequent or prolonged exposure to formaldehyde may cause hypersensitivity leading to contact dermatitis. Repeated or prolonged skin contact with formaldehyde may cause an allergic reaction in some people. Vision impairment and enlargement of liver may occur from methanol component. Formaldehyde is a suspected carcinogen (positive animal inhalation studies).
		6	Aggravation of Pre-existing Conditions:	Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance. Previously exposed persons may have an allergic reaction to future exposures.
4			First Aid Measures	
		1	Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
		2	Ingestion:	If swallowed and the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Any organic material will inactivate formaldehyde. Keep affected person warm and at rest. Get medical attention immediately. If vomiting occurs, keep head lower than hips.
		3	Skin Contact:	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
		4	Eye Contact:	Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.
		5	Note to Physician:	Monitor arterial blood gases and methanol levels after significant ingestion. Hemodialysis may be effective in formaldehyde removal. Use formic acid in urine and formaldehyde in blood or expired air as diagnostic tests.

MSDS (Material Safety Data Sheet)
Copper Reducer - C2065

5		Fire Fighting Measures:	
	1	Fire:	Flash point: 60C (140F) CC Autoignition temperature: 300C (572F) Flammable limits in air % by volume: lel: 7.0; uel: 73 Flammable liquid and vapor! Gas vaporizes readily from solution and is flammable in air.
	2	Explosion:	Above flash point, vapor-air mixtures are explosive within flammable limits noted above. Containers may explode when involved in a fire.
	3	Fire Extinguishing Media:	Water spray, dry chemical, alcohol foam, or carbon dioxide.
	4	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. Water may be used to flush spills away from exposures and to dilute spills to non-flammable mixtures.
6		Accidental Release Measures:	Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! 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. If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures.
7		Handling and Storage:	Store in a tightly closed container. Protect against physical damage. Store in a cool, dry well-ventilated location, away from any area where the fire hazard may be acute. Outside or detached storage is preferred. Separate from incompatibles. Containers should be bonded and grounded for transfers to avoid static sparks. Storage and use areas should be No Smoking areas. Use non-sparking type tools and equipment, including explosion proof ventilation. Wear special protective equipment (Sec. 8) for maintenance break-in or where exposures may exceed established exposure levels. Wash hands, face, forearms and neck when exiting restricted areas. Shower, dispose of outer clothing, change to clean garments at the end of the day. Avoid cross-contamination of street clothes. Wash hands before eating and do not eat, drink, or smoke in workplace. Protect from freezing. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.
8		Exposure Controls/Personal Protection:	

MSDS (Material Safety Data Sheet)
Copper Reducer - C2065

	1	Airborne Exposure Limits:	
	1	OSHA PEL:	
		Formaldehyde	0.75 ppm (TWA), 2 ppm (STEL), 0.5 ppm (TWA) action level for formaldehyde
		Methanol	200 ppm (TWA) for methanol
	2	ACGIH TLV:	0.3 ppm Ceiling formaldehyde, Sensitizer, A2 Suspected Human Carcinogen 200 ppm (TWA) 250 ppm (STEL) skin for methanol
	2	Ventilation System:	A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.
	3	Personal Respirators (NIOSH Approved):	If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece respirator with a formaldehyde cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Irritation also provides warning. For Methanol: If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). Where respirators are required, you must have a written program covering the basic requirements in the OSHA respirator standard. These include training, fit testing, medical approval, cleaning, maintenance, cartridge change schedules, etc. See 29CFR1910.134 for details.
	4	Skin Protection:	Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.
	5	Eye Protection:	Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area. See OSHA Standard for more information on personal protective equipment, engineering and work practice controls, medical surveillance, record keeping, and reporting requirements. (29 CFR 1910.1048)
9		Physical and Chemical Properties:	
	1	Appearance:	Clear, colorless solution.
	2	Odor:	Pungent
	3	Solubility in water:	Completely
	4	Density (g cm ⁻³):	1
	5	pH:	2.8
	6	% Volatiles by volume @ 21C (70F):	100
	7	Boiling Point: °C	96
	8	Melting Point (°C):	-15

**MSDS (Material Safety Data Sheet)
Copper Reducer - C2065**

	9	Vapor Density (Air=1):	1.04
	10	Vapor Pressure (mm Hg):	1.3
	11	Evaporation Rate (BuAc=1):	
10		Stability and Reactivity:	
	1	Stability:	Stable under ordinary conditions of use and storage.
	2	Hazardous Decomposition Products:	May form carbon dioxide, carbon monoxide, and formaldehyde when heated to decomposition.
	3	Hazardous Polymerization:	Trioxymethylene precipitate can be formed on long standing at very low temperatures. Nonhazardous polymerization may occur at low temperatures, forming paraformaldehyde, a white solid.
	4	Incompatibilities:	incompatible with oxidizing agents and alkalis. Reacts explosively with nitrogen dioxide at ca. 180C (356F). Reacts violently with perchloric acid, perchloric acid-aniline mixtures, and nitromethane. Reaction with hydrochloric acid may form bis-chloromethyl ether, an OSHA regulated carcinogen.
	5	Conditions to Avoid:	Heat, flames, ignition sources and incompatibles.
11		Toxicological Information:	
		Formaldehyde:	
	1	Oral rat LD50:	100 mg/kg
	2	Tumorigen:	Investigated
	3	Mutagen:	Investigated
	4	Reproductive effector:	Investigated
	5	Carcinogenicity:	OSHA regulated
	6	IARC Category:	
	7	Skin rabbit:	270 uL/kg
	8	Eye rabbit:	750 ug severe
	9	Inhalation rat LC50	203 mg/m3
		Methanol	
	1	Oral rat LD50:	5628 mg/kg
	2	Tumorigen:	Investigated
	3	Mutagen:	Investigated
	4	Reproductive effector:	Investigated
	5	Carcinogenicity:	
	6	IARC Category:	
	7	Skin rabbit:	15800 mg/kg
	8	Eye rabbit:	
	9	Inhalation rat LC50	64000 ppm/4H
12		Ecological Information	

MSDS (Material Safety Data Sheet)
Copper Reducer - C2065

	1	Environmental Fate:	The following statements refer to the environmental fate of formaldehyde. When released into the soil, this material is expected to leach into groundwater. When released into water, this material is expected to readily biodegrade. When released into water, this material is not expected to evaporate significantly. This material is not expected to significantly bioaccumulate. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to be readily degraded by photolysis. When released into the air, this material is expected to be readily removed from the atmosphere by dry and wet deposition. When released into the air, this material is expected to have a half-life of less than 1 day. The following statements refer to the environmental fate of methanol. When released into the soil, this material is expected to readily biodegrade. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material is expected to readily biodegrade.
	2	Environmental Toxicity:	The following toxicity information is for the formaldehyde portion. 96 Hr LC50 fathead minnow: 24.1 mg/L (flow-through); 96 Hr LC50 bluegill: 0.10 mg/L (flow-through); 96 Hr EC50 water flea: 20 mg/L. The methanol portion is expected to be slightly toxic to aquatic life. The LC50/96-hour values for fish are between 10 and 100 mg/l.
13		Disposal Considerations:	Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved incinerator or disposed in a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.
14		Transport Information:	
	1	Domestic (Land, D.O.T.):	
	1	Proper Shipping Name:	RQ, FORMALDEHYDE, SOLUTION, FLAMMABLE
	2	Hazard Class:	3, 8
	3	UN/NA:	UN1198
	4	Packing Group:	III
	5	Information reported for product/size:	200 L
	2	International (Water, I.M.O.):	
	1	Proper Shipping Name:	FORMALDEHYDE SOLUTIONS
	2	Hazard Class:	3, 8
	3	UN/NA:	UN1198
	4	Packing Group:	III
	5	Information reported for product/size:	200 L
	3	International (Air, I.C.A.O.):	
	1	Proper Shipping Name:	

**MSDS (Material Safety Data Sheet)
Copper Reducer - C2065**

		2	Hazard Class:	
		3	UN/NA:	
		4	Packing Group:	
		5	Information reported for product/size:	
15			Regulatory Information:	
	1		TSCA:	Y
	2		EC:	Y
	3		Japan:	Y
	4		Australia:	Y
	5		Korea:	Y
	6		Canada	Y
	7		Chemical Weapons Convention:	
	8		Known to the State of California to cause cancer (Y/N):	Y
	9		Australian Hazchem Code:	2SE
	10		Poison Schedule:	S6
	11		Controlled Products Regulations:	
16			Other Information	
	1		NFPA Ratings:	
		1	Health:	3
		2	Flammability:	2
		3	Reactivity:	0
	2		Label Hazard Warning:	POISON! DANGER! SUSPECT CANCER HAZARD. MAY CAUSE CANCER. Risk of cancer depends on level and duration of exposure. VAPOR HARMFUL. HARMFUL IF INHALED OR ABSORBED THROUGH SKIN. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. STRONG SENSITIZER. MAY BE FATAL OR CAUSE BLINDNESS IF SWALLOWED. CANNOT BE MADE NONPOISONOUS. FLAMMABLE LIQUID AND VAPOR.
	3		Label Precautions:	Keep away from heat, sparks and flame. Do not get in eyes, on skin, or on clothing. Do not breathe vapor. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Physical and health hazard information is available from employer and from material safety data sheets.

**MSDS (Material Safety Data Sheet)
Copper Reducer - C2065**

	4	Label First Aid:	In all cases get medical attention immediately. If swallowed and the victim is conscious, dilute, inactivate, or absorb the ingested formaldehyde by giving milk, activated charcoal, or water. Any organic material will inactivate formaldehyde. Keep affected person warm and at rest. If vomiting occurs, keep head lower than hips. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
	5	Product Use:	Commercial mirroring
	6	Disclaimer:	

Angelgilding.com provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. Angelgilding.com. makes no representations or warranties, either express or implied, including without limitation any warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly, Angelgilding.com will not be responsible for damages resulting from use of or reliance upon this information.