

**MSDS (Material Safety Data Sheet)**  
**Tin for Gold Concentrate - C2070**

|   |   |  |   |
|---|---|--|---|
| 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):                       | Tinf for Gold Concentrate - C2070   |
| 2 |   | Preparer:                              |   |
|   | 1 | Name:                                  | M. G. King  |
|   | 2 | Phone Number:                          | (708) 383-3340  |
|   | 3 | Revision Information:                  | 6/24/2008   |
| 2 |   | Composition/Information on Ingredients |   |
|   |   | TIN(II) chloride:                      |   |
|   | 1 | Synonyms:                              | Stannous chloride   |
|   | 2 | CAS Id:                                | 10025-69-1  |
|   | 3 | Formula:                               | SnCl <sub>2</sub> . 2H <sub>2</sub> O   |
|   | 4 | Formula Weight:                        | 225.63  |
|   | 5 | Percent:                               | 18  |
|   | 6 | Hazardous:                             |   |
|   |   | Hydrochloric acid:                     |   |
|   | 1 | Synonyms:                              | Hydrogen chloride solution  |
|   | 2 | CAS Id:                                | 7647-01-0   |
|   | 3 | Formula:                               | HCl (aq.)   |
|   | 4 | Formula Weight:                        | 36.46   |
|   | 5 | Percent:                               | 19  |
|   | 6 | Hazardous:                             |   |
| 3 |   | Hazards Identification                 |   |
|   | 1 | Overview:                              | POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.   |
|   | 2 | SAF-T Ratings:                         |   |
|   | 1 | Health Rating:                         | 3 - Severe (Poison)   |
|   | 2 | Flammability Rating:                   | 0   |
|   | 3 | Reactivity Rating:                     | 2 - Moderate  |
|   | 4 | Contact Rating:                        | 4 - Extreme (Corrosive)   |
|   | 5 | Protective Equipment:                  | GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES  |
|   | 6 | Storage Color Code:                    | White (Corrosive)   |
|   | 3 | Potential Health Effects:              |   |
|   | 1 | Inhalation:                            | Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract, and in severe cases, pulmonary edema, circulatory failure, and death.         |
|   | 2 | Ingestion:                             | Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea. Swallowing may be fatal. |
|   | 3 | Skin Contact:                          | Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.  |

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|   |   | 4 | Eye Contact:                            | Corrosive! Vapors are irritating and may cause damage to the eyes. Contact may cause severe burns and permanent eye damage.  |
|   |   | 5 | Chronic Exposure:                       | Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid.  |
|   |   | 6 | Aggravation of Pre-existing Conditions: | Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.  |
| 4 |   |   | First Aid Measures                      |  |
|   | 1 |   | Inhalation:                             | Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.   |
|   | 2 |   | Ingestion:                              | DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.   |
|   | 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:                      |  |
| 5 |   |   | Fire Fighting Measures:                 |  |
|   | 1 |   | Fire:                                   | Extreme heat or contact with metals can release flammable hydrogen gas.  |
|   | 2 |   | Explosion:                              |  |
|   | 3 |   | Fire Extinguishing Media:               | If involved in a fire, use water spray. Neutralize with soda ash or slaked lime.   |
|   | 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. Structural firefighter's protective clothing is ineffective for fires involving hydrochloric acid. Stay away from ends of tanks. Cool tanks with water spray until well after fire is out.  |
| 6 |   |   | Accidental Release Measures:            | Ventilate area of leak or spill. 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. Neutralize with alkaline material (soda ash, lime), then 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. |

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| 7 |   | Handling and Storage:                  | Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes. When diluting, the acid should always be added slowly to water and in small amounts. Never use hot water and never add water to the acid. Water added to acid can cause uncontrolled boiling and splashing. When opening metal containers, use non-sparking tools because of the possibility of hydrogen gas being present. 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: |   |
|   | 1 | Airborne Exposure Limits:              |   |
|   | 1 | OSHA PEL:                              | 5 ppm (Ceiling)   |
|   | 2 | ACGIH TLV:                             | 2 ppm (Ceiling), A4 Not classifiable as a human carcinogen  |
|   | 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, a full facepiece respirator with an acid gas 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.  |
|   | 4 | Skin Protection:                       | Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure 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.   |
| 9 |   | Physical and Chemical Properties:      |   |
|   | 1 | Appearance:                            | Colorless solution  |
|   | 2 | Odor:                                  | Pungent odor of hydrogen chloride.  |
|   | 3 | Solubility in water:                   | Complete  |
|   | 4 | Density (g cm <sup>-3</sup> ):         | 1.1   |
|   | 5 | pH:                                    | 0.1   |
|   | 6 | % Volatiles by volume @ 21C (70F):     |   |
|   | 7 | Boiling Point: °C                      | 100 C   |
|   | 8 | Melting Point (°C):                    | -30 C   |
|   | 9 | Vapor Density (Air=1):                 |   |

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|    | 10 | Vapor Pressure (mm Hg):           | 190 @ 25C  |
|    | 11 | Evaporation Rate (BuAc=1):        |  |
| 10 |    | Stability and Reactivity:         |  |
|    | 1  | Stability:                        | Powerful reducing agent. Absorbs oxygen from air and forms the insoluble oxychloride. Forms an insoluble basic salt when dissolved with much water.  |
|    | 2  | Hazardous Decomposition Products: | When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.  |
|    | 3  | Hazardous Polymerization:         |  |
|    | 4  | Incompatibilities:                | A strong mineral acid, concentrated hydrochloric acid is incompatible with many substances and highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible with materials such as cyanides, sulfides, sulfites, formaldehyde, sodium, potassium, bromine trifluoride, calcium carbide, calcium acetylide, ethylene oxide, and nitrates. Reacts with hydrazine hydrate to form dihydrazine chloride, which decomposes explosively when heated. Contact with strong oxidizing agents or alkalis will generate heat and fumes. |
|    | 5  | Conditions to Avoid:              | Heat, direct sunlight and incompatibles  |
| 11 |    | Toxicological Information:        |  |
|    | 1  | Oral rabbit LD50:                 | 700 mg/kg  |
|    | 2  | Tumorigen:                        | Investigated   |
|    | 3  | Mutagen:                          | Investigated   |
|    | 4  | Reproductive effector:            | Investigated   |
|    | 5  | Carcinogenicity:                  |  |
|    | 6  | IARC Category:                    |  |
|    | 7  | Skin rabbit:                      |  |
|    | 8  | Eye rabbit:                       |  |
|    | 9  | Inhalation rat LC50               | 3124 ppm/1H  |
| 12 |    | Ecological Information            |  |
|    | 1  | Environmental Fate:               | When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater.   |
|    | 2  | Environmental Toxicity:           | This material is expected to be toxic to aquatic life.   |
| 13 |    | Disposal Considerations:          | Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to 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:             | HYDROCHLORIC ACID  |
|    | 2  | Hazard Class:                     | 8  |
|    | 3  | UN/NA:                            | UN1789   |
|    | 4  | Packing Group:                    | II   |

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|    |    | 5 | Information reported for product/size:                  | 475 LB   |
|    | 2  |   | International (Water, I.M.O.):                          |  |
|    |    | 1 | Proper Shipping Name:                                   | HYDROCHLORIC ACID  |
|    |    | 2 | Hazard Class:   | 8  |
|    |    | 3 | UN/NA:  | UN1789   |
|    |    | 4 | Packing Group:  | II   |
|    |    | 5 | Information reported for product/size:                  | 475 LB   |
|    | 3  |   | International (Air, I.C.A.O.):                          |  |
|    |    | 1 | Proper Shipping Name:                                   |  |
|    |    | 2 | Hazard Class:   |  |
|    |    | 3 | UN/NA:  |  |
|    |    | 4 | Packing Group:  |  |
|    |    | 5 | Information reported for product/size:                  |  |
| 15 |    |   | Regulatory Information:                                 |  |
|    | 1  |   | TSCA:   | Yes  |
|    | 2  |   | EC:   | Yes  |
|    | 3  |   | Japan:  | Yes  |
|    | 4  |   | Australia:  | Yes  |
|    | 5  |   | Korea:  | Yes  |
|    | 6  |   | Canada:   | Yes  |
|    | 7  |   | Chemical Weapons Convention:                            | No   |
|    | 8  |   | Known to the State of California to cause cancer (Y/N): | No   |
|    | 9  |   | Australian Hazchem Code:                                | 2R   |
|    | 10 |   | Poison Schedule:  |  |
|    | 11 |   | Controlled Products Regulations:                        |  |
| 16 |    |   | Other Information                                       |  |
|    | 1  |   | NFPA Ratings:   |  |
|    |    | 1 | Health:   | 3  |
|    |    | 2 | Flammability:   | 0  |
|    |    | 3 | Reactivity:   | 1  |
|    | 2  |   | Label Hazard Warning:                                   | POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR INHALED. INHALATION MAY CAUSE LUNG DAMAGE.  |
|    | 3  |   | Label Precautions:                                      | Do not get in eyes, on skin, or on clothing.<br>Do not breathe vapor or mist.<br>Use only with adequate ventilation.<br>Wash thoroughly after handling.<br>Store in a tightly closed container.<br>Remove and wash contaminated clothing promptly. |

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|  | 4 | Label First Aid:  | 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. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases get medical attention immediately. |
|  | 5 | Product Use:  | Commercial mirroring   |
|  | 6 | Disclaimer:   |  |
|  |   | <p>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.</p> |  |