

**PRINTOGANTH MV COPPER TP1**

Version 2.0  
SDS\_US\_GHS

SDS Number: 1684945

Revision Date: 02/23/2018

**SECTION 1. IDENTIFICATION**

Product name : PRINTOGANTH MV COPPER TP1

Product code : 1684945

**Manufacturer or supplier's details**

Company name of supplier : Atotech Deutschland GmbH

Address : Erasmusstrasse 20  
Berlin 10553  
Germany

Telephone : +4930349850

Company name of supplier : Atotech USA

Address : 1750 OVERVIEW DRIVE  
ROCK HILL, SC, USA 29730

Telephone : +18038173500

Company name of supplier : Atotech Canada

Address : 1180 Corporate Drive  
BURLINGTON L7L 5R6  
Canada

Telephone : +19053320111

Prepared by  
Product Safety Department (PSD): product-safety@atotech.com

Inquiries  
Questions about content of Safety Data Sheets: product-safety@atotech.com

Emergency telephone number : CHEMTREC +18004249300

Transport Medical : Rocky Mountain Poison Control Center: 303-623-5716

**Recommended use of the chemical and restrictions on use**

Recommended use : Plating agents and metal surface treating agents  
Surface treatment

Restrictions on use : For industrial use only.

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**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200**

Skin irritation	: Category 2
Serious eye damage	: Category 1
Respiratory sensitization	: Category 1
Skin sensitization	: Category 1
Carcinogenicity (Inhalation)	: Category 1A
Reproductive toxicity	: Category 1B
Acute aquatic toxicity	: Category 1
Chronic aquatic toxicity	: Category 1

**GHS label elements**

Hazard pictograms	:   
Signal word	: Danger
Hazard statements	: H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H350i May cause cancer by inhalation. H360D May damage the unborn child. H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements	: <b>Prevention:</b> P202 Do not handle until all safety precautions have been read and understood. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P285 In case of inadequate ventilation wear respiratory protection.  <b>Response:</b> P302 + P352 IF ON SKIN: Wash with plenty of soap and water. P304 + P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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P310 Immediately call a POISON CENTER/doctor.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**

None known.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

Chemical nature : Aqueous solution

**Hazardous ingredients**

Chemical name	CAS-No.	Concentration (% w/w)
Copper sulfate	7758-98-7	$\geq 10 - < 25$
Tartaric acid (d, l)	87-69-4	$\geq 1 - < 2.5$
Sulfuric acid	7664-93-9	$\geq 1 - < 2.5$
Nickel sulfate	7786-81-4	$\geq 0.1 - < 0.25$

This product may contain component(s) that are not listed under disclosure. All components not listed, do not contain hazardous materials above de minimus disclosure limits as defined by OSHA, NIOSH, ACGIH or Canadian WHMIS 2015 regulations and or guidelines. Please refer to other sections of the SDS for information on safety, health and environmental guidelines and precautions.

**SECTION 4. FIRST AID MEASURES**

General advice : Call a physician or poison control center immediately.  
Show this safety data sheet to the doctor in attendance.

If inhaled : Call a physician or poison control center immediately.  
Move to fresh air.  
Oxygen, if needed.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes.  
Take off contaminated clothing and shoes immediately.  
Wash contaminated clothing before re-use.  
Get medical attention if irritation develops and persists.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 30 minutes.

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	Consult a physician.
If swallowed	: If swallowed, call a poison control centre or doctor immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice.
Most important symptoms and effects, both acute and delayed	: Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause cancer by inhalation. May damage the unborn child.
Protection of first-aiders	: First Aid responders should pay attention to self-protection and use the recommended protective clothing
Notes to physician	: For specialist advice physicians should contact the Poison Control Center.

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**SECTION 5. FIRE-FIGHTING MEASURES**

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: No information available.
Hazardous combustion products	: Sulfur oxides Carbon oxides
Specific extinguishing methods	: Use a water spray to cool fully closed containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for fire-fighters	: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

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**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures	: Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust).
Environmental precautions	: Should not be released into the environment. Local authorities should be advised if significant spillages cannot be contained.

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Methods and materials for containment and cleaning up : Avoid formation of aerosol.  
Dam up.  
Soak up with inert absorbent material.  
Keep in suitable, closed containers for disposal.  
Clean contaminated floors and objects thoroughly while observing environmental regulations.

**SECTION 7. HANDLING AND STORAGE**

Advice on safe handling : For personal protection see section 8.  
Smoking, eating and drinking should be prohibited in the application area.  
Handle in accordance with good industrial hygiene and safety practice.  
In case of insufficient ventilation, wear suitable respiratory equipment.  
Avoid breathing mist or vapors.

Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.  
Keep locked up or in an area accessible only to qualified or authorized persons.

Recommended storage temperature : -5 - 40 °C

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Ingredients with workplace control parameters**

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Copper sulfate	7758-98-7	TWA	1 mg/m <sup>3</sup> (Copper)	NIOSH REL
Sulfuric acid	7664-93-9	TWA (Thoracic fraction)	0.2 mg/m <sup>3</sup>	ACGIH
		TWA	1 mg/m <sup>3</sup>	NIOSH REL
		TWA	1 mg/m <sup>3</sup>	OSHA Z-1
		TWA	1 mg/m <sup>3</sup>	OSHA P0
Nickel sulfate	7786-81-4	TWA	1 mg/m <sup>3</sup> (Nickel)	OSHA Z-1
		TWA (Inhalable fraction)	0.1 mg/m <sup>3</sup> (Nickel)	ACGIH
		TWA	0.1 mg/m <sup>3</sup> (Nickel)	OSHA P0
		TWA	0.015 mg/m <sup>3</sup> (Nickel)	NIOSH REL

**Engineering measures** : Ensure adequate ventilation, especially in confined areas.

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**Personal protective equipment**

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.  
In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection

Remarks : Wear protective gloves. The suitability for a specific workplace should be discussed with the producers of the protective gloves. Follow the instructions for use issued by the producer.

Eye protection : Tightly fitting safety goggles  
Face-shield  
Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection : Impervious clothing  
Boots

Hygiene measures : Avoid contact with skin, eyes and clothing.  
Wash hands before breaks and immediately after handling the product.  
When using do not eat, drink or smoke.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : liquid

Color : blue, blue green

Odor : No information available.

Odor Threshold : No data available

pH : < 2.0

Melting point/freezing point : not determined

Initial boiling point and boiling range : not determined

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Upper explosion limit : No data available

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Lower explosion limit	:	No data available
Vapor pressure	:	ca. 23 hPa (20 °C)
Relative vapor density	:	No data available
Density	:	1.10 - 1.20 g/cm <sup>3</sup> (20 °C)
Solubility(ies)		
Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	Not applicable

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity	:	None under normal processing.
Chemical stability	:	Stable under recommended storage conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Conditions to avoid	:	To avoid thermal decomposition, do not overheat.
Incompatible materials	:	Bases
Hazardous decomposition products	:	No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation  
Eye contact  
Skin Absorption

**Acute toxicity**

Not classified based on available information.

**Product:**

Acute oral toxicity : Acute toxicity estimate: 2,801 mg/kg  
Method: Calculation method

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Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

Remark: The acute toxicity estimate (ATE) of the ingredients are derived using the LD50/LC50 values where available.

**Ingredients:****|| Copper sulfate:**

Acute oral toxicity : LD50 Oral (Rat): 308 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): 2,002 mg/kg

**|| Nickel sulfate:**

Acute oral toxicity : LD50 Oral (Rat): 275 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: 1.5 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist

**Skin corrosion/irritation**

Causes skin irritation.

**Product:**

Remarks: May cause skin irritation and/or dermatitis.

**Serious eye damage/eye irritation**

Causes serious eye damage.

**Product:**

Remarks: May cause irreversible eye damage.

**Respiratory or skin sensitization****Skin sensitisation**

May cause an allergic skin reaction.

**Respiratory sensitisation**

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

**Product:**

Remarks: Causes sensitization.

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

May cause cancer by inhalation.

**Product:**

Remarks: The IARC has classified "Strong inorganic acid mists containing sulfuric acid" as a Category 1 carcinogen, a substance that is "carcinogenic to humans". This classification is for strong inorganic acid mists only and does not apply to sulfuric acid or sulfuric acid solutions.



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**IARC**

Group 1: Carcinogenic to humans

Sulfuric acid 7664-93-9

Nickel sulfate 7786-81-4

**ACGIH**

Suspected human carcinogen

Sulfuric acid 7664-93-9

Not classifiable as a human carcinogen

Nickel sulfate 7786-81-4

**OSHA specified**

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

**NTP**

Known to be human carcinogen

Sulfuric acid 7664-93-9

Nickel sulfate 7786-81-4

**Reproductive toxicity**

May damage the unborn child.

**Ingredients:****Nickel sulfate:**

Reproductive toxicity - Assessment : May damage the unborn child.

**STOT - single exposure**

Not classified based on available information.

**STOT - repeated exposure**

Not classified based on available information.

**Ingredients:****Nickel sulfate:**

Target Organs: Respiratory Tract

Assessment: Causes damage to organs through prolonged or repeated exposure.

**Aspiration toxicity**

Not classified based on available information.

**Further information****Product:**

Remarks: No data available

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**SECTION 12. ECOLOGICAL INFORMATION****Ecotoxicity****Ingredients:****Copper sulfate:**

Toxicity to fish : LC50: 0.11 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50: 0.02 mg/l  
aquatic invertebrates Exposure time: 48 h

**Nickel sulfate:**

Toxicity to fish : LC50: 1.28 mg/l  
Exposure time: 96 h

Toxicity to daphnia and other : EC50: 1 mg/l  
aquatic invertebrates Exposure time: 48 h

Toxicity to algae : EC50: 0.75 mg/l  
Exposure time: 72 h

**Persistence and degradability**

No data available

**Bioaccumulative potential****Ingredients:****Tartaric acid (d, l):**

Partition coefficient: n- : log Pow: -1.0  
octanol/water

**Mobility in soil**

No data available

**Other adverse effects****Product:**

No data available

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of in accordance with local regulations.  
Dispose of wastes in an approved waste disposal facility.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

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**SECTION 14. TRANSPORT INFORMATION****International Regulations****IATA-DGR**

UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
Technical name(s) : (Copper sulfate)  
Class : 9  
Packing group : III  
Labels : Miscellaneous  
Packing instruction (cargo aircraft) : 964  
Packing instruction (passenger aircraft) : 964

**IMDG-Code**

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
Technical name(s) : N.O.S.  
(Copper sulfate)  
Class : 9  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F  
Marine pollutant : yes

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

**Domestic regulation****DOT / 49 CFR**

UN/ID/NA number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,  
N.O.S.  
(Copper sulfate)  
Class : 9  
Packing group : III  
Labels : CLASS 9  
ERG Code : 171  
Marine pollutant : yes (Copper sulfate)

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**SECTION 15. REGULATORY INFORMATION**

**TSCA 5a** : No substances are subject to a Significant New Use Rule.

**TSCA\_12b** : No substances are subject to TSCA 12(b) export notification requirements.

**DEA** : Not applicable

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**EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Copper sulfate	7758-98-7	10	90
Sulfuric acid	7664-93-9	1000	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

Ingredients	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sulfuric acid	7664-93-9	1000	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Skin corrosion or irritation  
Serious eye damage or eye irritation  
Respiratory or skin sensitisation  
Carcinogenicity  
Reproductive toxicity

**SARA 302** : The following components are subject to reporting levels established by SARA Title III, Section 302:

Sulfuric acid 7664-93-9

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Copper sulfate 7758-98-7

Sulfuric acid 7664-93-9

Nickel sulfate 7786-81-4

**US State Regulations****Massachusetts Right To Know**

Copper sulfate	7758-98-7	10 - 25 %
Sulfuric acid	7664-93-9	1 - 2.5 %

**Pennsylvania Right To Know**

Copper sulfate	7758-98-7	10 - 25 %
Sulfuric acid	7664-93-9	1 - 2.5 %

**New Jersey Right To Know**

Copper sulfate	7758-98-7	10 - 25 %
Sulfuric acid	7664-93-9	1 - 2.5 %
Nickel sulfate	7786-81-4	0.1 - 1 %

**California Prop. 65**

WARNING: This product can expose you to chemicals including Sulfuric acid, Nickel sulfate, which is/are known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

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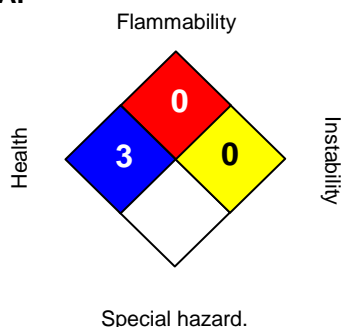
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**Remarks:** Components which are only displayed in Section 15 are being reported for local regulatory purposes. These components are not displayed in Section 3 due to one or more of the following conditions being met: being present in the product at concentration(s) below threshold limit values for reporting, not considered hazardous materials, health hazards or because they do not contribute to the overall GHS Classification of the final product as required by OSHA HazCom 2012 final rule ( 29 CFR 1910.1200).

**Substances currently restricted by WEEE/RoHS (European Directive 2012/19/EC , 2011/65/EC) or ELV (European Directive 2000/53/EC):**

PBDE	PBB	CrVI	Hg	Pb	Cd
-	-	-	-	-	-

Please note: Current legislation restricting the use of certain substances applies to „homogeneous material“ in finished articles being supplied to the market. Substances deposited during surface finishing may have a composition (weight percent) higher than the weight percent of the substance in the operating solution from which the deposit is made. Atotech encourages its customers to implement systems to ensure their finished products comply with the regulations in force.

**SECTION 16. OTHER INFORMATION****Further information****NFPA:****Full text of other abbreviations**

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
OSHA P0	:	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
OSHA Z-1	:	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA	:	8-hour, time-weighted average
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
OSHA P0 / TWA	:	8-hour time weighted average
OSHA Z-1 / TWA	:	8-hour time weighted average

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(Q)SAR - (Quantitative) Structure Activity Relationship; ASTM - American Society for the Testing of Materials; bw - Body weight; DIN - Standard of the German Institute for Standardisation; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISO - International Organisation for Standardization; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; DOT - Department of Transportation; EHS - Extremely Hazardous Substance; HMIS - Hazardous Materials Identification System; MSHA - Mine Safety and Health Administration; NFPA - National Fire Protection Association; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SARA - Superfund Amendments and Reauthorization Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; GLP - Good Laboratory Practice; ERG - Emergency Response Guide; NTP - National Toxicology Program; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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