Copper conductor bar, rod, and shapes for electrical (bus) applications per ASTM B187 by Copper Development Association

THIRD-PARTY VERIFIED

Health Product Declaration v2.3

created via: HPDC Online Builder

HPD UNIQUE IDENTIFIER: 31324
CLASSIFICATION: 26 10 00 Medium-Voltage Electrical Distribution
PRODUCT DESCRIPTION: Copper conductor bar, rod, and shapes for electrical (bus) applications made from copper and copper alloys, as manufactured by a Copper Development Association member, per ASTM B187. Other product classifications include, but are not limited to, 26 20 00 Low-voltage Electrical Distribution.

Section 1: Summary

Nested Method / Product Threshold

CONTENT INVENTORY

Inventory Reporting Format
- (•) Nested Materials Method
- ( ) Basic Method

Threshold Disclosed Per
- ( ) Material
- (•) Product

Threshold Level
- ( ) 100 ppm
- ( ) 1,000 ppm
- ( ) Per GHS SDS
- (•) Other

Residuals/Impurities Evaluation
Completed in 16 of 16 Materials

Explanation(s) provided for Residuals/Impurities?
- (•) Yes ( ) No

For all contents above the threshold, the manufacturer has:

Characterized (•) Yes ( ) No
Provided weight and role.

Screened (•) Yes ( ) No
Provided screening results using HPDC-approved methods.

Identified (•) Yes ( ) No
Provided name and CAS RN or other identifier.

CONTENT IN DESCENDING ORDER OF QUANTITY

Summary of product contents and results from screening individual chemical substances against HPD Priority Hazard Lists and the GreenScreen for Safer Chemicals®. The HPD does not assess whether using or handling this product will expose individuals to its chemical substances or any health risk. Refer to Section 2 for further details.

NESTED MATERIAL | MATERIAL OR SUBSTANCE | *RESIDUAL OR IMPURITY*
GREENSCREEN SCORE | HAZARD TYPE

UNS C10100 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU SULFUR, ELEMENTAL LT-UNK | SKI | MAM OXYGEN, LIQUID LT-UNK | PHY | REP NICKEL (METALLIC) LT-1 | CAN | RES | MUL | MAM | SKI | AQU LEAD BM-1 | END | PBT | REP | MUL | CAN | DEV | GEN | MAM | AQU IRON LT-P1 | END ARSENIC, INORGANIC LT-1 | CAN | END | PBT | MUL | DEV | MAM | GEN | AQU | REP] UNS C10200 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU OXYGEN LT-UNK | PHY | REP] UNS C10300 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU PHOSPHORUS BM-2 | MAM | PHY | EYE | AQU | SKI] UNS C10400 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C10500 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C10700 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C10920 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C10930 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C10940 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU OXYGEN, LIQUID LT-UNK | PHY | REP] UNS C11000 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU] UNS C11020 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU] UNS C11300 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END |

Number of Greenscreen BM-4/BM3 contents ... 0

Contents highest-concern GreenScreen score(s) (BM-1, LT-1, LT-P1) ... LT-P1, BM-1, LT-1

Nanomaterial ... No

INVENTORY AND SCREENING NOTES:

Special Conditions applied: [MetalAlloy]. The product formulation was created using the ASTM standard to identify acceptable copper alloys. The formulation of each of these alloys was generated from the UNS designation, as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. The specific material formulation should be obtained directly from the manufacturer of the product chosen. Metal alloys have different intrinsic characteristics than their alloying elements encapsulated therein, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. All GreenScreen BenchMark scores are supplied by the Pharos database.

MUL | MAM | AQU] UNS C11400 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU] UNS C11500 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU] UNS C11600 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU SILVER BM-1 | END | MUL | MAM | AQU] UNS C12000 COPPER ALLOY [COPPER LT-P1 | GEN | EYE | MAM | SKI | AQU PHOSPHORUS BM-2 | MAM | PHY | EYE | AQU | SKI]

VOLATILE ORGANIC COMPOUND (VOC) CONTENT

VOC Content data is not applicable for this product category.

CERTIFICATIONS AND COMPLIANCE *See Section 3 for additional listings.*

VOC emissions: Inherently non-emitting source per LEED

CONSISTENCY WITH OTHER PROGRAMS

No pre-checks completed or disclosed.

Third Party Verified?

- (•) Yes
- ( ) No

PREPARER: Self-Prepared
VERIFIER: WAP Sustainability Consulting
VERIFICATION #: zPr-13949

SCREENING DATE: 2022-12-14
PUBLISHED DATE: 2023-02-10
EXPIRY DATE: 2025-12-14

Section 2: Content in Descending Order of Quantity

This section lists contents in a product based on specific threshold(s) and reports detailed health information including hazards. This HPD uses the inventory method indicated above, which is one of three possible methods:

- *Basic Inventory method with Product-level threshold.*
- *Nested Material Inventory method with Product-level threshold*
- *Nested Material Inventory method with individual Material-level thresholds*

Definitions and requirements for the three inventory methods and requirements for each data field can be found in the HPD Open Standard version 2.3, available on the HPDC website at: www.hpd-collaborative.org/hpd-2-3-standard

UNS C10100 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER ID: 7440-50-8

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:57**

%: **99.9900 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:59**

%: **0.0000 - 0.0030** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: This is a residual element in the alloy.

SULFUR, ELEMENTAL

ID: 7704-34-9

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:51**

%: **0.0000 - 0.0020** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
SKI	EU - GHS (H-Statements) Annex 6 Table 3-1	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
SKI	GHS - New Zealand	Skin irritation category 2
SKI	GHS - Australia	H315 - Causes skin irritation [Skin corrosion/irritation - Category 2]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: This is a residual element in the alloy.

OXYGEN, LIQUID

ID: 7782-44-7

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:51**

%: **0.0000 - 0.0010** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

NICKEL (METALLIC) ID: **7440-02-0**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **0.0000 - 0.0010** GreenScreen: **LT-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
CAN	MAK	Carcinogen Group 1 - Substances that cause cancer in man
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	CA EPA - Prop 65	Carcinogen
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
CAN	IARC	Group 2b - Possibly carcinogenic to humans
CAN	US NIH - Report on Carcinogens	Reasonably Anticipated to be Human Carcinogen
RES	MAK	Sensitizing Substance Sah - Danger of airway & skin sensitization
MUL	German FEA - Substances Hazardous to Waters	Class 2 - Hazard to Waters
CAN	EU - GHS (H-Statements) Annex 6 Table 3-1	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
CAN	GHS - New Zealand	Carcinogenicity category 2
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Australia	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organ toxicity - repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
CAN	EU - Annex VI CMRs	Carcinogen Category 2 - Suspected human Carcinogen
SKI	GHS - New Zealand	Skin sensitisation category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Certain Metals
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Footwear, Apparel & Jewelry Products

SUBSTANCE NOTES: This is a residual element in the alloy.

LEAD ID: **7439-92-1**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:56**

%: **0.0000 - 0.0010** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
PBT	OSPAR - Priority PBTs & EDs & equivalent concern	PBT - Chemical for Priority Action
REP	EU - SVHC Authorisation List	Toxic to reproduction - Candidate list
PBT	OR DEQ - Priority Persistent Pollutants	Priority Persistent Pollutant - Tier 1
MUL	ChemSec - SIN List	CMR - Carcinogen, Mutagen &/or Reproductive Toxicant
CAN	CA EPA - Prop 65	Carcinogen
CAN	IARC	Group 2b - Possibly carcinogenic to humans
CAN	MAK	Carcinogen Group 2 - Considered to be carcinogenic for man
CAN	US NIH - Report on Carcinogens	Reasonably Anticipated to be Human Carcinogen
DEV	G&L - Neurotoxic Chemicals	Developmental Neurotoxicant
CAN	US EPA - IRIS Carcinogens	(1986) Group B2 - Probable human Carcinogen
CAN	IARC	Group 2a - Agent is probably Carcinogenic to humans
DEV	CA EPA - Prop 65	Developmental toxicity
PBT	US EPA - Priority PBTs (NWMP)	Priority PBT
PBT	WA DoE - PBT	PBT
PBT	US EPA - Toxics Release Inventory PBTs	PBT

DEV	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Developmental Toxicity
REP	US NIH - Reproductive & Developmental Monographs	Clear Evidence of Adverse Effects - Reproductive Toxicity
REP	EU - REACH Annex XVII CMRs	Toxic to Reproduction Category 1 - Substances known to impair fertility or cause Developmental Toxicity in humans
REP	EU - Annex VI CMRs	Reproductive Toxicity - Category 1A
GEN	MAK	Germ Cell Mutagen 3a
REP	CA EPA - Prop 65	Reproductive Toxicity - Female
REP	CA EPA - Prop 65	Reproductive Toxicity - Male
CAN	GHS - Korea	H350 - May cause cancer [Carcinogenicity - Category 1]
REP	GHS - Korea	H360 - May damage fertility or the unborn child [Reproductive toxicity - Category 1]
REP	GHS - Japan	H360 - May damage fertility or the unborn child [Toxic to reproduction - Category 1A]
DEV	GHS - Australia	H360Df - May damage the unborn child. Suspected of damaging fertility [Reproductive toxicity - Category 1A or 1B]
REP	EU - GHS (H-Statements) Annex 6 Table 3-1	H360FD - May damage fertility. May damage the unborn child [Reproductive toxicity - Category 1A or 1B]
DEV	EU - GHS (H-Statements) Annex 6 Table 3-1	H362 - May cause harm to breast-fed children [Reproductive toxicity, effects on or via lactation]
REP	GHS - New Zealand	Reproductive toxicity category 1
CAN	GHS - New Zealand	Carcinogenicity category 2
CAN	GHS - Japan	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Australia	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
GEN	GHS - Japan	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1
AQU	GHS - Korea	H400 - Very toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 1]
AQU	GHS - Korea	H410 - Very toxic to aquatic life with long lasting effects [Hazardous to the aquatic environment (chronic) - Category 1]
GEN	GHS - New Zealand	Germ cell mutagenicity category 2

MAM	GHS - New Zealand	Acute oral toxicity category 3
REP	GHS - New Zealand	Effects on or via lactation
CAN	GHS - Australia	H351 - Suspected of causing cancer [Carcinogenicity - Category 2]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Certain Metals
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Core Restrictions
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Footwear, Apparel & Jewelry Products
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This is a residual element in the alloy.

IRON

ID: 7439-89-6

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2022-12-14 19:29:59**

%: **0.0000 - 0.0010** GreenScreen: **LT-P1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
None found		No listings found on Additional Hazard Lists

SUBSTANCE NOTES: This is a residual element in the alloy.

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:53**

%: **0.0000 - 0.0010** GreenScreen: **LT-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
CAN	US CDC - Occupational Carcinogens	Occupational Carcinogen
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
CAN	MAK	Carcinogen Group 1 - Substances that cause cancer in man
PBT	OR DEQ - Priority Persistent Pollutants	Priority Persistent Pollutant - Tier 1
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
CAN	IARC	Group 1 - Agent is Carcinogenic to humans
CAN	CA EPA - Prop 65	Carcinogen
CAN	US NIH - Report on Carcinogens	Known to be a human Carcinogen
DEV	G&L - Neurotoxic Chemicals	Developmental Neurotoxicant
CAN	US EPA - IRIS Carcinogens	(1986) Group A - Human Carcinogen
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
GEN	MAK	Germ Cell Mutagen 3a
CAN	GHS - Australia	H350 - May cause cancer [Carcinogenicity - Category 1A or 1B]
CAN	GHS - Japan	H350 - May cause cancer [Carcinogenicity - Category 1A]
CAN	GHS - Korea	H350 - May cause cancer [Carcinogenicity - Category 1]
AQU	EU - GHS (H-Statements) Annex 6 Table 3-1	H400 - Very toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 1]
AQU	EU - GHS (H-Statements) Annex 6 Table 3-1	H410 - Very toxic to aquatic life with long lasting effects [Hazardous to the aquatic environment (chronic) - Category 1]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
MAM	EU - GHS (H-Statements) Annex 6 Table 3-1	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
CAN	GHS - New Zealand	Carcinogenicity category 1
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
GEN	GHS - Australia	H341 - Suspected of causing genetic defects [Germ cell mutagenicity - Category 2]
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1

MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1
AQU	GHS - Korea	H400 - Very toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 1]
AQU	GHS - Korea	H410 - Very toxic to aquatic life with long lasting effects [Hazardous to the aquatic environment (chronic) - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
GEN	GHS - New Zealand	Germ cell mutagenicity category 2
MAM	GHS - Malaysia	H300 - Fatal if swallowed [Acute toxicity (oral) - Category 1 or 2]
MAM	GHS - Malaysia	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
MAM	GHS - Australia	H301 - Toxic if swallowed [Acute toxicity (oral) - Category 3]
MAM	GHS - Australia	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]
AQU	GHS - Malaysia	H410 - Very toxic to aquatic life with long lasting effects [Hazardous to the aquatic environment (chronic) - Category 1]
AQU	GHS - Malaysia	H400 - Very toxic to aquatic life [Hazardous to the aquatic environment (acute) - Category 1]
MAM	GHS - Korea	H331 - Toxic if inhaled [Acute toxicity (inhalation) - Category 3]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Certain Metals
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Core Restrictions
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products
RESTRICTED LIST	International Living Future Institute (ILFI)	Living Building Challenge 4.0 - Red List of Materials & Chemicals - Effective April 1, 2022 Red List substances to avoid in Living Building Challenge V4.0 projects

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10200 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:55**

%: **99.9500 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

OXYGEN

ID: **7782-44-7**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:59**

%: **0.0000 - 0.0010** GreenScreen: **LT-UNK** RC: **None** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10300 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:00**

%: **99.9500 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

PHOSPHORUS

ID: **7723-14-0**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:53**

%: **0.0010 - 0.0050** GreenScreen: **BM-2** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
PHY	GHS - New Zealand	Pyrophoric solids category 1
EYE	GHS - New Zealand	Serious eye damage category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
SKI	GHS - New Zealand	Skin corrosion category 1A
MAM	GHS - New Zealand	Acute dermal toxicity category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 1
MAM	GHS - New Zealand	Acute oral toxicity category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products

SUBSTANCE NOTES:

UNS C10400 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:57**

%: **99.9500 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:56**

%: **0.0270 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.027% Ag, equivalent to Ag 8 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

OXYGEN, LIQUID ID: **7782-44-7**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:02**

%: **0.0000 - 0.0010** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10500 COPPER ALLOY %: 100.0000 - 100.0000

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER ID: 7440-50-8

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:54**

%: **99.9500 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **0.0340 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.034% Ag, equivalent to Ag 10 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

OXYGEN, LIQUID ID: **7782-44-7**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:54**

%: **0.0000 - 0.0010** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10700 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS except for Alloy C10100 which has a minimum conductivity of 101% IACS.

COPPER

ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:56**

%: **99.9500 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER

ID: 7440-22-4

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:05**

%: **0.0850 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.085% Ag, equivalent to Ag 25 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

OXYGEN, LIQUID

ID: 7782-44-7

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:00**

%: **0.0000 - 0.0010** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10920 COPPER ALLOY %: 100.0000 - 100.0000

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER ID: 7440-50-8

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:56**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

OXYGEN, LIQUID

ID: 7782-44-7

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:00**

%: **0.0000 - 0.0200** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10930 COPPER ALLOY %: 100.0000 - 100.0000

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER ID: 7440-50-8

HAZARD DATA SOURCE: Pharos Chemical and Materials Library HAZARD SCREENING DATE: 2023-02-09 21:14:00

%: 99.9000 - 100.0000 GreenScreen: LT-P1 RC: Both NANO: No SUBSTANCE ROLE: Alloy element

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER

ID: 7440-22-4

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:02**

%: **0.0440 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.044% Ag, equivalent to Ag 13 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

OXYGEN, LIQUID

ID: 7782-44-7

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **0.0000 - 0.0200** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C10940 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **0.0850 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.085% Ag, equivalent to Ag 25 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

OXYGEN, LIQUID ID: **7782-44-7**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:06**

%: **0.0000 - 0.0200** GreenScreen: **LT-UNK** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
PHY	EU - GHS (H-Statements) Annex 6 Table 3-1	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]
REP	GHS - Japan	H361 - Suspected of damaging fertility or the unborn child [Toxic to reproduction - Category 2]
PHY	GHS - New Zealand	Oxidising gases category 1
PHY	GHS - Japan	H270 - May cause or intensify fire; oxidizer [Oxidizing gases - Category 1]
PHY	GHS - Australia	H270 - May cause or intensify fire; oxidiser (GAS ONLY) [Oxidizing gases - Category 1]

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
EXEMPT	European Union / European Commission (EU EC)	EU - REACH Exemptions Exempted from REACH Annex V listing due to intrinsic safety

SUBSTANCE NOTES: This is a residual element in the alloy.

UNS C11000 COPPER ALLOY %: **100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:05**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

UNS C11020 COPPER ALLOY %: **100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:02**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

UNS C11300 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER

ID: 7440-50-8

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:03**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER

ID: 7440-22-4

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:04**

%: **0.0270 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.027% Ag, equivalent to Ag 8 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

UNS C11400 COPPER ALLOY

%: 100.0000 - 100.0000

PRODUCT THRESHOLD: **Other** RESIDUALS AND IMPURITIES EVALUATION COMPLETED: **Yes** MATERIAL TYPE: **Metal**

RESIDUALS AND IMPURITIES NOTES: **Defined by UNS per Metal Alloy special condition**

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER

ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:03**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:59**

%: **0.0340 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.034% Ag, equivalent to Ag 10 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

UNS C11500 COPPER ALLOY %: **100.0000 - 100.0000**

PRODUCT THRESHOLD: **Other** RESIDUALS AND IMPURITIES EVALUATION COMPLETED: **Yes** MATERIAL TYPE: **Metal**

RESIDUALS AND IMPURITIES NOTES: **Defined by UNS per Metal Alloy special condition**

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:00**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:01**

%: **0.0540 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.054% Ag, equivalent to Ag 16 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

UNS C11600 COPPER ALLOY %: **100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial. O and trace elements may vary depending on the process. This is a high conductivity Cu which has, in the annealed condition a minimum conductivity of 100% IACS.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:07**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

SILVER ID: **7440-22-4**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:01**

%: **0.0850 - 0.5000** GreenScreen: **BM-1** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
END	TEDX - Potential Endocrine Disruptors	Potential Endocrine Disruptor
MUL	German FEA - Substances Hazardous to Waters	Class 3 - Severe Hazard to Waters
MAM	GHS - Japan	H372 - Causes damage to organs through prolonged or repeated exposure [Specific target organs/systemic toxicity following repeated exposure - Category 1]
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials

SUBSTANCE NOTES: The UNS standard specifies a minimum of 0.085% Ag, equivalent to Ag 25 Troy Oz min. However, a maximum was provided herein to align with the likelihood that the supplier utilizes minimal amounts of Ag. Please check with your specific supplier for more accurate data regarding Ag content.

UNS C12000 COPPER ALLOY **%: 100.0000 - 100.0000**

PRODUCT THRESHOLD: Other RESIDUALS AND IMPURITIES EVALUATION COMPLETED: Yes MATERIAL TYPE: Metal

RESIDUALS AND IMPURITIES NOTES: Defined by UNS per Metal Alloy special condition

OTHER MATERIAL NOTES: This formulation was generated based on the UNS designation for the alloy as found at www.unscopperalloys.org, duplicated in the Toxnot Shared Materials library. Metal alloys have different intrinsic characteristics than their alloying elements, including health and environmental hazards. As such, alloys are generally expected to have different hazards than their alloying elements. This alloy is one in a list of multiple alloys that may be used to meet the product standard and, as such, shall be treated as an alternate of all other alloys listed in this HPD. This alloy is registered with the U.S. EPA as antimicrobial.

COPPER ID: **7440-50-8**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:14:03**

%: **99.9000 - 100.0000** GreenScreen: **LT-P1** RC: **Both** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
GEN	GHS - New Zealand	Germ cell mutagenicity category 1
EYE	GHS - New Zealand	Eye irritation category 2
MAM	GHS - Japan	H370 - Causes damage to organs [Specific target organs/systemic toxicity following single exposure - Category 1]
SKI	GHS - New Zealand	Skin sensitisation category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 2
MAM	GHS - New Zealand	Acute oral toxicity category 2
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 2

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Perkins+Will (P+W)	P&W - Precautionary List Precautionary list of substances recommended for avoidance
RESTRICTED LIST	Green Science Policy Institute (GSPI)	GSPI - Six Classes of Problematic Chemicals Antimicrobials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Biological and Environmentally Released Materials
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Children's Products

SUBSTANCE NOTES: This value includes Ag, though it is not intentionally added and may only be present as a residual of the process by which raw material (i.e., Cu ore) is refined. However, due to the high value of Ag, refining operations prioritize its removal to the highest extent practical. Pre-Consumer Recycled Content Products: Recyclable copper materials generated during production which is recycled within the plant where it originates, or bought back from customers or scrap dealers (i.e. punchings from stamping operations, clippings, gates/risers from castings). Post-Consumer Recycled Content Products: Scrap copper wires, cables, tubes, busbar, and strip, plate, and sheet products (e.g., roofing, cladding, gutters, flashing).

PHOSPHORUS ID: **7723-14-0**

HAZARD DATA SOURCE: **Pharos Chemical and Materials Library** HAZARD SCREENING DATE: **2023-02-09 21:13:58**

%: **0.0040 - 0.0120** GreenScreen: **BM-2** RC: **UNK** NANO: **No** SUBSTANCE ROLE: **Alloy element**

HAZARD TYPE	LIST NAME AND SOURCE	WARNINGS
MAM	US EPA - EPCRA Extremely Hazardous Substances	Extremely Hazardous Substances
MAM	GHS - New Zealand	Specific target organ toxicity - repeated exposure category 1
PHY	GHS - New Zealand	Pyrophoric solids category 1
EYE	GHS - New Zealand	Serious eye damage category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - acute category 1
AQU	GHS - New Zealand	Hazardous to the aquatic environment - chronic category 1
MAM	Québec CSST - WHMIS 1988	Class D1A - Very toxic material causing immediate and serious toxic effects
SKI	GHS - New Zealand	Skin corrosion category 1A
MAM	GHS - New Zealand	Acute dermal toxicity category 1
MAM	GHS - New Zealand	Acute inhalation toxicity category 1
MAM	GHS - New Zealand	Acute oral toxicity category 1

ADDITIONAL LISTINGS	LIST NAME AND SOURCE	NOTIFICATION
RESTRICTED LIST	Cradle to Cradle Products Innovation Institute (C2CPII)	C2C Certified v4 Product Standard Restricted Substances List (RSL) - Effective July 1, 2022 Cosmetics & Personal Care Products

SUBSTANCE NOTES:

Section 3: Certifications and Compliance

This section lists applicable certification and standards compliance information for VOC emissions and VOC content. Other types of health or environmental performance testing or certifications completed for the product may be provided.

VOC EMISSIONS	Inherently non-emitting source per LEED

CERTIFYING PARTY: Self-declared
APPLICABLE FACILITIES: All
CERTIFICATE URL:

ISSUE DATE: 2021-12-13
EXPIRY DATE:

CERTIFIER OR LAB: Self-declared

CERTIFICATION AND COMPLIANCE NOTES:

Section 4: Accessories

This section lists related products or materials that the manufacturer requires or recommends for installation (such as adhesives or fasteners), maintenance, cleaning, or operations. For information relating to the contents of these related products, refer to their applicable Health Product Declarations, if available.

No accessories are required for this product.

Section 5: General Notes

Substance ranges within the HPD are due to the variability in the UNS formulations. This HPD is meant to provide likely formulations of copper products found within the ASTM B187 standard and lists the copper alloy(s) referenced in that standard. Manufacturers should be contacted to obtain a true disclosure for the product in question.

A list of Copper Development Association members can be found at https://www.copper.org/about/cdamembers.html. For detailed guidance on the design and installation of this product, view the guide here: https://copperalliance.org.uk/knowledge-base/resource-library/busbars-guidance-design-installation/.

Related Construction Specifications Institute (CSI) MasterFormat ® designations include the following. These are provided as a general guideline; other sections may apply. 26 15 00 Medium-Voltage Enclosed Bus Assemblies, 26 15 13 Medium-Voltage Busways, 26 18 29 Medium-Voltage Enclosed Bus, 26 25 00 Low-Voltage Enclosed Bus Assemblies, 26 25 13 Low-Voltage Busways, 33 72 00 Utility Substations, 33 72 26.16 Copper Substation Bus Assemblies, 33 71 00 Electrical Utility Transmission and Distribution, 33 71 26 Transmission and Distribution Equipment, 33 73 00 Utility Transformers, 33 73 13 Liquid-Filled Utility Transformers, 33 73 23 Dry-Type Utility Transformers, 33 74 00 Extra High Voltage (EHV) Switchgear and protection devices, 33 75 00 High-Voltage Switchgear and Protection Devices, 33 77 00 Medium-Voltage Utility Switchgear and Protection Devices, 33 78 00 Substation Converter Stations.

Section 6: References

MANUFACTURER INFORMATION

MANUFACTURER: **Copper Development Association**
ADDRESS: **7918 Jones Branch Drive**
Suite 300
McLean Virginia 22102, United States
WEBSITE: **copper.org**

CONTACT NAME: **Erin Smith**
TITLE: **Project Manager, Material Stewardship (US**
PHONE: **212-251-7247**
EMAIL: **sustainability@copperalliance.us**

The listed contact is responsible for the validity of this HPD and attests that it is accurate and complete to the best of his or her knowledge.

KEY

Hazard Types

AQU Aquatic toxicity
CAN Cancer
DEV Developmental toxicity
END Endocrine activity
EYE Eye irritation/corrosivity
GEN Gene mutation
GLO Global warming
LAN Land toxicity
MAM Mammalian/systemic/organ toxicity
MUL Multiple
NEU Neurotoxicity
NF Not found on Priority Hazard Lists
OZO Ozone depletion
PBT Persistent, bioaccumulative, and toxic
PHY Physical hazard (flammable or reactive)
REP Reproductive
RES Respiratory sensitization
SKI Skin sensitization/irritation/corrosivity
UNK Unknown

GreenScreen (GS)

BM-4 Benchmark 4 (prefer-safer chemical)
BM-3 Benchmark 3 (use but still opportunity for improvement)
BM-2 Benchmark 2 (use but search for safer substitutes)
BM-1 Benchmark 1 (avoid - chemical of high concern)
BM-U Benchmark Unspecified (due to insufficient data)
LT-P1 List Translator Possible 1 (Possible Benchmark-1)
LT-1 List Translator 1 (Likely Benchmark-1)
LT-UNK List Translator Benchmark Unknown
NoGS No GreenScreen.

GreenScreen Benchmark scores sometimes also carry subscripts, which provide more context for how the score was determined. These are DG (data gap), TP (transformation product), and CoHC (chemical of high concern). For more information, see 2.2.2.4 GreenScreen® for Safer Chemicals, www.greenscreenchemicals.org, and Best Practices for Hazard Screening on the HPDC website (hpd-collaborative.org).

Recycled Types

PreC Pre-consumer recycled content
PostC Post-consumer recycled content
UNK Inclusion of recycled content is unknown
None Does not include recycled content

Other Terms:

GHS SDS Globally Harmonized System of Classification and Labeling of Chemicals Safety Data Sheet

Inventory Methods:

Nested Method / Material Threshold Substances listed within each material per threshold indicated per material
Nested Method / Product Threshold Substances listed within each material per threshold indicated per product
Basic Method / Product Threshold Substances listed individually per threshold indicated per product

Nano Composed of nano scale particles or nanotechnology
Third Party Verified Verification by independent certifier approved by HPDC
Preparer Third party preparer, if not self-prepared by manufacturer
Applicable facilities Manufacturing sites to which testing applies

The Health Product Declaration (HPD) Open Standard provides for the disclosure of product contents and potential associated human and environmental health hazards. Hazard associations are based on the HPD Priority Hazard Lists, the GreenScreen List Translator™, and when available, full GreenScreen® assessments. The HPD Open Standard v2.1 is not:

- *a method for the assessment of exposure or risk associated with product handling or use,*
- *a method for assessing potential health impacts of: (i) substances used or created during the manufacturing process or (ii) substances created after the product is delivered for end use.*

Information about life cycle, exposure and/or risk assessments performed on the product may be reported by the manufacturer in appropriate Notes sections, and/or, where applicable, in the Certifications section.

The HPD Open Standard was created and is supported by the Health Product Declaration Collaborative (the HPD Collaborative), a customer-led organization composed of stakeholders throughout the building industry that is committed to the continuous improvement of building products through transparency, openness, and innovation throughout the product supply chain.

The product manufacturer and any applicable independent verifier are solely responsible for the accuracy of statements and claims made in this

HPD and for compliance with the HPD standard noted.