2018 Product Certifications

Jost Copper Citrate Hemitrihydrate

Jost Chemical Co.
8150 Lackland Road
St. Louis, MO 63114 USA
Contents

Absence Declaration ............................................................................................................................................. 4
Allergen Free Certification .................................................................................................................................... 5
Animal Testing Statement..................................................................................................................................... 5
Bisphenol A (BPA) Free Certification .................................................................................................................... 5
BSE / TSE / Animal Derivative Free Certification .................................................................................................. 6
Business Continuity Statement ............................................................................................................................. 6
Carcinogenic, Mutagenic & Reproductive Toxicity Certification .......................................................................... 6
Composition Statement ........................................................................................................................................ 6
Contaminants Statement ...................................................................................................................................... 7
Continuing Guarantee ........................................................................................................................................... 7
Country of Origin Certification ............................................................................................................................ 7
Cross Contamination Statement ............................................................................................................................ 7
Debarment Statement ........................................................................................................................................... 7
Dioxin & Polychlorinated Biphenyl (PCB) Free Certification ................................................................................. 8
Environmental / Temperature Monitoring ........................................................................................................... 8
FDA Audit Status / Registration & Bioterrorism ...................................................................................................... 8
Flow Chart ............................................................................................................................................................. 9
Food Grade Certification ..................................................................................................................................... 10
Gluten Free Certification .................................................................................................................................... 10
GMO Statement .................................................................................................................................................. 10
Halal Certification ............................................................................................................................................... 10
Heat Treated Pallets Certification ....................................................................................................................... 10
Homogeneity Statement ..................................................................................................................................... 11
Ingredient Certification / Composition Statement ............................................................................................. 11
Kosher Certification ............................................................................................................................................ 11
Latex Free Statement ........................................................................................................................................... 11
Lot Number Explanation ..................................................................................................................................... 11
Melamine Free Statement .................................................................................................................................. 12
Metal Reagent / Metal Catalyst Statement ................................................................. 12
Nanomaterial Statement .......................................................................................... 12
Non Irradiation / ETO Statement ........................................................................... 12
Nutritional Certificate ........................................................................................... 13
Organic Compliance Certification ........................................................................... 14
Packaging Certification .......................................................................................... 14
Pesticide & Aflatoxin Free Certification ................................................................. 14
Phthalate Free Certification .................................................................................... 15
Proposition 65 ......................................................................................................... 15
Purity Statement ..................................................................................................... 15
Quaternary Ammonium Compounds Statement ................................................. 15
Residual Solvent Certification ................................................................................ 15
Safety Data Sheet (SDS) ....................................................................................... 16
Specification / Product Sheet ................................................................................ 16
Stability & Storage Certification ............................................................................ 16
Substances of Very High Concern Statement ..................................................... 16
Synthetically Produced Certification .................................................................... 16
Tariff Code ............................................................................................................. 17
Traceability Statement .......................................................................................... 17
Vegan & Vegetarian Certification .......................................................................... 17
W.A.D.A. Certification ............................................................................................ 17
Water Source Statement ....................................................................................... 17
Absence Declaration

Jost Chemical does not utilize as a raw material, starting material, processing aid, or deliberately add to Copper Citrate Hemitrihydrate the substances listed below. Jost Chemical does not specifically analyze Copper Citrate Hemitrihydrate for these substances as there is no reason to believe that they would be present.

- 2,4,6-Tribromophenol (TBP)
- 2-Ethylhexanoic Acid (2-EHA)
- Acrylamide
- Amino Acids
- Antibiotics
- Aromatic Amines
- Asbestos
- Azocolorants
- Biocides
- Bisphenol A
- Bisphenol A Compounds
- Bisphenol A Diglycidyl Ether (BADGE)
- Bisphenol A Diglycidyl Ether (BFDGE)
- Brominated Flame Retardants (BFRs)
- Butylated Hydroxyanisole (BHA)
- Butylated Hydroxytoluene (BHT)
- Chlorofluorocarbons (CFCs)
- Colorants
- Conflict Minerals
- Dimethyl Fumarate
- Dry Natural Rubber
- Ethoxyquin
- Fatty Acids
- Formaldehyde
- Halons
- Herbicides
- Hexabromocyclododecane (HBCD)
- Hormones
- Hydrochlorofluorocarbons (HCFCs)
- Insecticides
- Latex
- Long-chain (C9-20) perfluorocarboxylic acids (PFCAs), their salts, and their precursors
- Methyl-naphthalenes (including 4-methyl-naphthalene)
- Natural Rubber
- Natural Rubber Latex
- Novalac Glycidyl Ether (NOGE)
- Pentachlorophenol (PCP)
- Perfluorinated tensides (PFTs)
- Perfluorooctanoic acid (PFOA), its salts and precursors
- Pesticides
- Plasticizers (Adipates, ESBO, Phthalates e.g. BBP, DBP, DEHP, DnHP, DIDP, DINP, DNOP)
- Polybrominated Biphenyl (PBB)
- Polybrominated Diphenyl Ether (PBDE)
- Polychlorinated bi- or terphenyls (PCB/PCT)
- Polycyclic Aromatic Compounds (PACs)
Polycyclic aromatic hydrocarbons (PAH)
Polydextrose
Polyvinyl Chloride (PVC)
Preservatives
Sewage Sludge
Short-Chain Chlorinated Paraffins (SCCPs)

Silicone
Tertiary Butylhydroquinone (TBHQ)
Tetrabromobisphenol A (TBBPA)
Thiurams
Vinyl Chloride

Allergen Free Certification

EU directive 1169/2011 annex II, FDA “Big Eight” Allergens & Others

Jost Chemical Co. herein certifies that Copper Citrate Hemitrihydrate does not contain as an ingredient and is not manufactured on processing equipment that comes in contact with any of the commonly recognized allergens, including but not limited to the following: cereals containing gluten and products thereof, crustaceans and products thereof, eggs and products thereof, fish and products thereof, peanuts and products thereof, soybeans and products thereof, milk and products thereof (including lactose), nuts and products thereof, celery and products thereof, mustard and products thereof, sesame seeds and products thereof, sulfur dioxide and sulfites, lupin and products thereof, mollusks and products thereof, artificial flavors, monosodium glutamate, wheat, buckwheat, animal derivatives, artificial colors, safflower, sesame, sunflower, cottonseed, poppy seed, rice, gelatin, soy, yeast, fruits and berries.

Animal Testing Statement

Jost Chemical does not perform, contract, or participate in animal testing with any of the Jost Chemical products manufactured by Jost Chemical or the raw materials used to manufacture Jost Chemical products.

Bisphenol A (BPA) Free Certification

BPA is not used as a raw material or as a packaging component in the manufacturing and packaging of Copper Citrate Hemitrihydrate.
BSE / TSE / Animal Derivative Free Certification

Jost Chemical Co. herein certifies that Copper Citrate Hemitrihydrate is not manufactured from, or with, any type of animal product nor any derivative of an animal product. Additionally, the Jost Chemical Co. facilities do not inventory any animal products or derivatives of animal products. As such, Copper Citrate Hemitrihydrate manufactured by Jost Chemical Co. should not be considered a vector for BSE or TSE.

Business Continuity Statement

Jost Chemical Co. has developed a detailed Business Continuity Plan to obviate any disruptions in the supply chain. Although many of the details are proprietary, the following can be shared:

- Jost Chemical Co. has approved / qualified alternate raw material suppliers to ensure an uninterrupted raw material supply.
- The Jost Chemical Co. operations are not unionized, which eliminates disruption resultant from labor disputes.
- Jost Chemical Co. employees are cross-trained thereby ensuring continuation of employee coverage in the event of unforeseen workforce disruptions (e.g. absences resultant from a flu pandemic).
- Jost Chemical Co. has multiple, identical manufacturing trains that are fully interchangeable so production can proceed if a disruption impacts part of the manufacturing site.
- The Jost Chemical Co. manufacturing site consists of four buildings. Two of these buildings are utilized for manufacturing. If one of the manufacturing buildings is impacted the other is available for manufacturing.
- Jost Chemical Co. has access to outside warehousing both in the USA and the EU. Safety stock can be established in these warehouses if requested by the customer.

Carcinogenic, Mutagenic & Reproductive Toxicity Certification

Jost Chemical herein certifies that Copper Citrate Hemitrihydrate does not contain any of the carcinogens, mutagens, or toxic for reproduction (CMR) substances referenced in Annex II of Council Directive 76/769/EEC.

Composition Statement

Jost Chemical’s Copper Citrate Hemitrihydrate is a pure compound containing only Copper Citrate Hemitrihydrate. It does not contain any additives, carriers, excipients, flow conditioners, anti-caking agents, bulking agents, preservatives, anti-oxidants, flavorings, colorings, or additional ingredients of any type.
Contaminants Statement

Based on a knowledge of the raw materials used in manufacturing and a detailed understanding of the manufacturing process, Jost Chemical’s Copper Citrate Hemitrihydrate should not be considered at risk for contamination with 3-MCPD (3-monochloropropane-1,2-diol or 3-chloropropane-1,2-diol) or any other chloropropanols.

Continuing Guarantee

Jost Chemical hereby guarantees each shipment or delivery of Copper Citrate Hemitrihydrate is not adulterated or misbranded within the meaning of the Federal Food, Drug, and Cosmetic Act and is not an article which may not, under the provisions of sections 404 or 505 of the Act, be introduced into interstate commerce and to be not adulterated or misbranded within the meaning of the statutes of any state of the United States in which the definition of adulteration and misbranding are substantially the same as set forth under the Federal Food, Drug, and Cosmetic Act. This guarantee shall apply to all shipments or other deliveries of the above indicated product, until revoked in writing.

Country of Origin Certification

Jost Chemical Co. herein certifies that Jost Copper Citrate Hemitrihydrate is manufactured at the Jost Chemical Co. site located in St. Louis, Missouri, USA.

Cross Contamination Statement

Jost Chemical implements a fully validated cleaning procedure to facilitate contamination prevention. The use of labels and isolated packaging suites equipped with dedicated air handling units further aid in keeping all material in its intended location.

Debarment Statement

Jost Chemical herein certifies that neither the Company nor any person employed by Jost Chemical has been convicted of any crime described in Section 306(a) and (b) of the Generic Drug Enforcement act of 1992. Jost Chemical does not, has not, and will not, use the services of any person debarred under Sections 306(a) or (b).
Dioxin & Polychlorinated Biphenyl (PCB) Free Certification

Jost Chemical's Copper Citrate Hemitrihydrate is manufactured using high purity raw materials. Copper Citrate Hemitrihydrate is not routinely tested for dioxins or PCBs. However, based on a detailed knowledge of the raw materials and processing conditions, dioxins and PCBs contamination is not considered a significant risk.

Environmental / Temperature Monitoring

All Jost products are manufactured and stored at ambient temperature. Due to the inherently stable nature of our products, temperature and humidity monitoring are not required.

FDA Audit Status / Registration & Bioterrorism

It is hereby certified that the Jost Chemical Co. facilities listed below are U.S. FDA registered as “Bulk Drug/API” manufacturing facilities and are subject to unannounced FDA current Good Manufacturing Practices (cGMP) compliance inspections on a regular basis.

Manufacturing Plant: Jost Chemical Co.
Manufacturing Site Location: 8110 / 8130 / 8150 / 8190 Lackland Rd., St. Louis, MO 63114, USA
Jost Chemical FDA Drug Firm FEI: 3001239108
Data Universal Numbering System Number: 147882294
Bioterrorism Number: 11389416366
Most Recent FDA Audit: January 2018
Audit Result: No 483s issued.
Flow Chart

Raw Materials

Controlled Reaction

Crystal Isolation

Centrifugation

Drying

Blending

Sifting

Magnet

Packaging & Sampling

Testing

Release
Food Grade Certification

Jost Chemical Co. herein certifies that Copper Citrate Hemitrihydrate under compendia titles (where applicable) USP, EP, BP, JP, FCC, NF, and Purified is Food Grade given that it is manufactured according to the principles and requirements of cGMPs and meets its defined microbiological requirements listed on the applicable Certificate of Analysis.

Gluten Free Certification

Jost Chemical Co. herein certifies that Copper Citrate Hemitrihydrate does not contain as an ingredient and is not manufactured on processing equipment that comes in contact with gluten or products containing gluten.

GMO Statement

Jost Chemical Co. herein certifies that Copper Citrate Hemitrihydrate is manufactured from non-Genetically Modified raw materials and raw materials that are produced by fermentation process utilizing a non-Genetically Modified microorganism.

As such, Jost Chemical’s Copper Citrate Hemitrihydrate should be considered non-Genetically Modified. This position is consistent with EC 1830/2003 and EC 1829/2003, Recital 16, and the ANIA interpretation on these regulations.

Halal Certification

Please click the following link to Jost Chemical Co.’s website for the certificate: Halal Certification

Heat Treated Pallets Certification

Please be advised that Jost Chemical does not use chemically treated wood pallets. Jost Chemical pallets are heat-treated (HT) pallets bearing the IPPC logo. The IPPC heat-treatment or “HT” designation is clearly visible on the exterior of the pallets.

Jost Chemical wood pallets are purchased new and are stored indoors at Jost Chemical. The pallets are manufactured in the USA from USA hardwoods.
Homogeneity Statement

Jost Chemical hereby confirms that each lot is tested and released per our product specifications. Homogeneity is guaranteed by a validated blending procedure and associated testing.

Ingredient Certification / Composition Statement

Jost Chemical Co. herein certifies that Jost Copper Citrate Hemitrihydrate, contains only Copper Citrate Hemitrihydrate and no additional ingredients, additives, carrier, preservatives, or excipients.

Kosher Certification

Please click the following link to Jost Chemical Co.’s website for the certificate: Kosher Certification

Latex Free Statement

Jost Chemical Company does not warehouse, manufacture, or use latex in the manufacturing and packaging processes of Jost Chemical Products. Jost Chemical products are considered latex free.

Lot Number Explanation

Key:
First four digits = product and grade
Fifth digit = last digit of production year
Sixth, seventh, and eighth digits = consecutive lot produced in year indicated
Example: Lot 25603018
2560 = a Jost product code
3 = product produced in 2013
018 = the eighteenth lot of product code 2560 produced in 2013
Definitions: A “batch” is a discreet chemical reaction process. A “lot” is a uniform blend of multiple batches. The blending process has been validated for uniformity.
Melamine Free Statement

Copper Citrate Hemitrihydrate is not a source for protein, thus it is not considered “at risk” for intentional adulteration with melamine.

Metal Reagent / Metal Catalyst Statement

Jost Chemical’s Copper Citrate Hemitrihydrate does not utilize an elemental metal reagent and metal catalysts are not used in the production of Copper Citrate Hemitrihydrate at Jost Chemical.

Nanomaterial Statement

Jost Chemical does not employ the use of nanomaterials or nanotechnology in the manufacture of Jost Chemical finished products.

Non Irradiation / ETO Statement

Jost Chemical’s Copper Citrate Hemitrihydrate has not been irradiated per 7 CFR 205.105(f) requirements with the understanding that “irradiation” shall be defined as outlined in 21 CFR 179.26.

Jost Chemical’s Copper Citrate Hemitrihydrate has not been treated with ETO (ethylene oxide) nor any other chemical sterilizing agent.
### Nutritional Certificate

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Saturated Fat</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Trans Fat</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Total Carbohydrates (Digestible by difference)</td>
<td>54.9 grams / 100 grams</td>
</tr>
<tr>
<td>Dietary Fiber</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Added Sugars</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Protein</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Thiamin</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Riboflavin</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Niacin</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Calcium</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Iron</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Potassium</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Copper</td>
<td>37, 100 mg / 100 grams</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Manganese</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Sodium</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Strontium</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Zinc</td>
<td>Not a dietary source</td>
</tr>
<tr>
<td>Calories</td>
<td>135.7 Cal / 100 grams</td>
</tr>
</tbody>
</table>

1. The above values should be considered typical nutritional values. Refer to the Certificate of Analysis for applicable lot specific analytical values. Nutritional values apply solely to USP, EP, BP, JP, FCC, NF, & Purified Grades where applicable.
Organic Compliance Certification

Non-Irradiated: See Non-Irradiation Statement herein.

No Sewage Sludge: Jost Chemical’s Copper Citrate Hemitrihydrate has not come into contact with sewage sludge per the requirements of 7 CFR 205.105(g).

Non-GMO: See GMO Statement herein.

Packaging Certification

Herein contains information concerning packaging used in the manufacturing of Jost Chemical’s finished goods.

- The poly liners used are manufactured from virgin, FDA-approved, polyethylene that does not contain slip additives.
- The poly liners are not produced from materials engineered by nanotechnology.
- Per 21 CFR 177.1520, (c), 2.1, these liners are approved for use in the United States as an article or component of an article intended for use in contact with food, subject to the specific limitation that it may contact food only at temperatures of 212F and below.

Pesticide & Aflatoxin Free Certification

None of the raw materials used are agricultural products and none are treated with pesticides. Therefore, Copper Citrate Hemitrihydrate is not routinely tested for pesticides or aflatoxins. Based on a detailed knowledge of the raw materials and processing conditions, pesticide and aflatoxin contamination is not considered a significant risk.
Phthalate Free Certification

Jost Chemical products and packaging used for said products are not manufactured using phthalates, and do not contain phthalates. This includes, but is not limited to, the following: DEHP, DINP, DNOP, DIDP, DBP, and BBP.

Proposition 65

Jost Chemical does not contribute, and is not the source of any Proposition 65 listed chemicals. The presence of any Prop 65 listed chemicals is due solely to the presence of the chemicals contained in raw materials used to manufacture a Jost Chemical finished product.

The California Office of Environmental Health Hazard Assessment (O.E.H.H.A.) of the California Environmental Protection Agency is the lead agency for Prop 65 implementation. The OEHHA website states the following:

“It should be noted that under Proposition 65, there are no acceptable concentrations established for any prop 65 listed chemical in any given product. An exposure that causes a significant risk of harm from a listed chemical through the use of a product would trigger the warning requirement, not merely the fact that a listed chemical is present in a product.”

Purity Statement

Jost Chemical’s Copper Citrate Hemitrihydrate is a pure compound containing only Copper Citrate Hemitrihydrate. It does not contain any other additional ingredients of any type.

Quaternary Ammonium Compounds Statement

Jost Chemical Co. products and packaging do not come into contact with Quaternary Ammonium Compounds.

Residual Solvent Certification

Jost Chemical Co. herein certifies that no organic solvents are used in the manufacture of Jost Copper Citrate Hemitrihydrate.

Additionally, based on a knowledge of the raw materials, the manufacturing process and the controlled handling, shipping and storage of said product, there is no significant potential for any of the ICH Q3C Class 1, Class 2 or Class 3 solvents or any other organic solvents to be present. If tested, Jost Copper Citrate Hemitrihydrate will comply with the USP <467>.
Safety Data Sheet (SDS)

Please select the following link:  
SDS - English (US)  
SDS - English (EN)  
SDS - Belgian (BE)  
SDS - German (DE)  
SDS - French (FR)  
SDS - Netherlands (NL)  
SDS - Spanish (ES)  
SDS - Polish (PL)  
SDS - Italian (IT)

Specification / Product Sheet

Please click the following link to Jost Chemical Co.’s website:  
Copper Products

Stability & Storage Certification

Based on real-time stability studies, Jost Chemical recommends retesting Copper Citrate Hemitrihydrate three years from the labeled Date of Manufacture to ensure ongoing specification compliance. Three years from the Date of Manufacture represents a “Retest Date” and not an “Expiration Date”.

Store Jost Chemical Copper Citrate Hemitrihydrate in a clean dry warehouse in the original unopened Jost Chemical packaging.

Substances of Very High Concern Statement

Jost Chemical’s Copper Citrate Hemitrihydrate does not contain Substances of Very High Concern (SVHCs) from the ECHA Candidate List as an intentional or unintentional constituent at ≥ 0.1%.

Synthetically Produced Certification

Jost Chemical’s Copper Citrate Hemitrihydrate is manufactured by chemical synthesis. Due to the nature of the Jost Chemical proprietary production process (full chemical reaction), Jost Copper Citrate Hemitrihydrate should be considered as synthetic material manufactured by Jost Chemical Co. in St. Louis, MO USA.
Tariff Code

2918.15.5000

Traceability Statement

The Jost Chemical BPRs (Batch Production Records) allow for full traceability to raw materials used in manufacturing all finished lots, equipment used for manufacturing all finished lots, personnel responsible for manufacturing all finished lots, in-process lots, and controls for all finished lots and in-process testing results for all finished lots. The production records permit traceability to equipment usage. The laboratory records allow for all traceability to all testing activities. The cleaning records allow for traceability to all cleaning activities. The shipping and distribution records all for full traceability to the “ship-to” location for every container comprising all finished lots. All of the above allows for full backwards and forward traceability. Jost Chemical performs mock recalls on a regular basis (2 times per year) and has repeatedly demonstrated full backwards and forwards traceability.

Vegan & Vegetarian Certification

Jost Chemical’s Copper Citrate Hemitrihydrate is suitable for vegetarians and vegans.

W.A.D.A. Certification

Jost Chemical herein certifies that Jost Chemical products are manufactured without any substances listed in the January 2018 W.A.D.A. (World Anti-Doping Agency) Prohibited List.

Additionally, no January 2018 W.A.D.A. Prohibited List substance is used as a processing aid in the manufacturing of any Jost Chemical product. None of the January 2018 W.A.D.A. Prohibited List substances comes into contact with any Jost manufacturing equipment and none of these Prohibited List substances are warehoused by Jost Chemical.

All Jost Chemical products comply with the January 2018 W.A.D.A. Prohibited List.

Water Source Statement

Jost Chemical’s source water is potable city water supplied by the City of St. Louis Water Division. This source water complies with all local, state, and federal regulations.
Sincerely,

[Signature]

Joel Kruse
Quality Assurance Manager
Jost Chemical Co.