

SAFETY DATA SHEET

ReNEWable Gas Purifier - Depleted Cartridge, Part Number G3440-69003-DEF

Section 1. Identification

This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article.

1.1 Product identifier

Product name : ReNEWable Gas Purifier - Depleted Cartridge, Part Number G3440-69003-DEF
Part no. : G3440-69003-DEF
Validation date : 3/8/2018

1.2 Relevant identified uses of the substance or mixture and uses advised against

Material uses : Analytical chemistry.
 Sealed cartridge
 0.029 kg

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Note * : Observe technical data sheet/instructions for use.

Section 2. Hazards identification

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

2.1 Classification of the substance or mixture

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

H251 SELF-HEATING SUBSTANCES AND MIXTURES - Category 1
 H332 ACUTE TOXICITY (inhalation) - Category 4
 H314 SKIN CORROSION - Category 1B
 H318 SERIOUS EYE DAMAGE - Category 1
 H350 CARCINOGENICITY - Category 1A
 H372 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (brain, lungs) - Category 1

Ingredients of unknown toxicity : Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 10 - 30%
 Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: > 60%
 Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms



Signal word

: Danger

Hazard statements

: H251 - Self-heating; may catch fire.
 H332 - Harmful if inhaled.
 H314 - Causes severe skin burns and eye damage.
 H350 - May cause cancer.
 H372 - Causes damage to organs through prolonged or repeated exposure. (brain, lungs)

Precautionary statements

Prevention

: P201 - Obtain special instructions before use.
 P202 - Do not handle until all safety precautions have been read and understood.
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
 P235 - Keep cool.
 P410 - Protect from sunlight.
 P271 - Use only outdoors or in a well-ventilated area.
 P260 - Do not breathe dust.
 P270 - Do not eat, drink or smoke when using this product.
 P264 - Wash hands thoroughly after handling.

Response

: P314 - Get medical attention if you feel unwell.
 P308 + P313 - IF exposed or concerned: Get medical attention.
 P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
 P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.
 P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.
 P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage

: P405 - Store locked up.
 P413 - Store bulk masses greater than 15 kg/33 lbs at temperatures not exceeding 100 °C/212 °F.
 P407 - Maintain air gap between stacks.
 P420 - Store away from other materials.

Disposal

: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

: Do not taste or swallow. Wash thoroughly after handling.

2.3 Other hazards

Hazards not otherwise classified

: Causes digestive tract burns.

Section 3. Composition/information on ingredients

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

Substance/mixture : Mixture (encapsulated in article)

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
Copper oxide, Activated	≥10 - ≤19	1317-38-0
Manganese dioxide, Activated	≥10 - ≤19	1313-13-9
Disodium oxide	≤5	1313-59-3
Calcium oxide	<5	1305-78-8
crystalline silica, respirable powder	≤3	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

- Eye contact** : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
- Inhalation** : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes severe burns.
- Ingestion** : Corrosive to the digestive tract. Causes burns.

Over-exposure signs/symptoms

Section 4. First aid measures

- Eye contact** : Adverse symptoms may include the following:
 pain
 watering
 redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
 pain or irritation
 redness
 blistering may occur
- Ingestion** : Adverse symptoms may include the following:
 stomach pains

4.3 Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

5.2 Special hazards arising from the substance or mixture

- Specific hazards arising from the chemical** : Self-heating material. May catch fire.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 metal oxide/oxides

5.3 Advice for firefighters

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

- Methods for cleaning up** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- 7.2 Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store bulk masses greater than 15 kg/33 lbs at temperatures not exceeding 100 °C/212 °F. Store locked up. Eliminate all ignition sources. Store away from other materials. Maintain air gap between stacks/pallets. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

- Recommendations** : Industrial applications, Professional applications.
- Industrial sector specific solutions** : Not applicable.

Section 8. Exposure controls/personal protection

Since the hazardous ingredient in this article is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
<p><input checked="" type="checkbox"/> Copper oxide, Activated</p> <p>Manganese dioxide, Activated</p> <p>Disodium oxide Calcium oxide</p> <p>crystalline silica, respirable powder</p>	<p>NIOSH REL (United States, 10/2016). TWA: 0.1 mg/m³, (as Cu) 10 hours. Form: Fume</p> <p>OSHA PEL (United States). TWA: 1 mg/m³, (Cu) 8 hours. Form: Total dust</p> <p>ACGIH TLV (United States). TWA: 1 mg/m³, (Cu) 8 hours. Form: Total dust</p> <p>NIOSH REL (United States, 10/2016). TWA: 1 mg/m³, (as Mn) 10 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume</p> <p>OSHA PEL 1989 (United States, 3/1989). CEIL: 5 mg/m³, (as Mn)</p> <p>ACGIH TLV (United States, 3/2017). TWA: 0.1 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.02 mg/m³, (as Mn) 8 hours. Form: Respirable fraction</p> <p>OSHA PEL (United States, 6/2016). CEIL: 5 mg/m³, (as Mn)</p> <p>None.</p> <p>ACGIH TLV (United States, 3/2017). TWA: 2 mg/m³ 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2016). TWA: 2 mg/m³ 10 hours.</p> <p>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours.</p> <p>OSHA PEL Z3 (United States, 6/2016). TWA: 250 mppcf / (%SiO₂+5) 8 hours. Form: Respirable TWA: 10 mg/m³ / (%SiO₂+2) 8 hours. Form: Respirable</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 0.1 mg/m³, (as quartz) 8 hours. Form: Respirable dust</p> <p>OSHA PEL (United States, 6/2016). TWA: 50 µg/m³ 8 hours. Form: Respirable dust</p> <p>ACGIH TLV (United States, 3/2017). TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2016). TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p>

Section 8. Exposure controls/personal protection

8.2 Exposure controls

- Appropriate engineering controls** : Use only with adequate ventilation. Engineering controls may be required to control the primary or secondary risks associated with this product. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Solid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : Not available.
- Melting point** : Not available.
- Boiling point** : Not available.
- Flash point** : Not available.

Section 9. Physical and chemical properties

Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Not available.
Vapor pressure	: Not available.
Vapor density	: Not available.
Relative density	: Not available.
Solubility	: Not available.
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: Not available.
Decomposition temperature	: Not available.
Viscosity	: Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: This product, by reaction with air and without energy supply, is liable to self-heat and will ignite when in large amounts and after long periods of time. The spontaneous ignition temperature will be $\leq 50^{\circ}\text{C}$ for a volume of 450 litres.
10.2 Chemical stability	: The product is stable.
10.3 Possibility of hazardous reactions	: Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following: extended contact with air in bulk storage Reactions may include the following: risk of causing fire spontaneous flammability
10.4 Conditions to avoid	: <input checked="" type="checkbox"/> No specific data.
10.5 Incompatible materials	: May react or be incompatible with oxidizing materials. <input checked="" type="checkbox"/> Reactive or incompatible with the following materials: moisture.
10.6 Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<input checked="" type="checkbox"/> Copper oxide, Activated	LD50 Oral	Rat	470 mg/kg	-
Manganese dioxide, Activated	LD50 Oral	Rat	3478 mg/kg	-
Calcium oxide	LC50 Inhalation Dusts and mists	Rat - Male, Female	$>6040 \text{ mg/m}^3$	4 hours
	LD50 Oral	Rat - Female	2000 mg/kg	-

Irritation/Corrosion

Not available.

Sensitization

Section 11. Toxicological information

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
crystalline silica, respirable powder	-	1	Known to be a human carcinogen.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
calcium oxide	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Manganese dioxide, Activated crystalline silica, respirable powder	Category 2 Category 1	Inhalation Inhalation	brain lungs

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : Harmful if inhaled.
- Skin contact** : Causes severe burns.
- Ingestion** : Corrosive to the digestive tract. Causes burns.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : No specific data.
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
stomach pains

Section 11. Toxicological information

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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

Carcinogenicity : May cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	3898.4 mg/kg
Inhalation (dusts and mists)	3.45 mg/l

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Copper oxide, Activated	Acute LC50 2.6 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Manganese dioxide, Activated	Acute LC50 >56000 ppm Fresh water	Fish - Gambusia affinis - Adult	96 hours
	Acute EC50 >100 mg/l Fresh water	Algae	72 hours
	Acute LC50 >100 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 >100 mg/l Fresh water	Fish	96 hours
Calcium oxide	Acute NOEC 100 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC >100 mg/l Fresh water	Fish	96 hours
	Acute LC50 ≥1070 mg/l Fresh water	Fish	96 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Oreochromis niloticus - Juvenile (Fledgling, Hatchling, Weanling)	46 days

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Calcium oxide	-	2.34	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.






Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

This Safety Data Sheet is written based on the encapsulated substance or mixture in this article. Since the hazardous ingredient is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN3190	UN3190	UN3190	UN3190	UN3190
UN proper shipping name	Self-heating solid, inorganic, n.o.s. (Manganese dioxide, Activated, Copper oxide, Activated)	SELF-HEATING SOLID, INORGANIC, N.O. S. (Manganese dioxide, Activated, Copper oxide, Activated)	SOLIDO QUE EXPERIMENTA CALENTAMIENTO ESPONTANEO, INORGANICO, N. E.P. (Manganese dioxide, Activated, Copper oxide, Activated)	SELF-HEATING SOLID, INORGANIC, N.O. S. (Manganese dioxide, Activated, Copper oxide, Activated)	Self-heating solid, inorganic, n.o.s. (Manganese dioxide, Activated, Copper oxide, Activated)

Section 14. Transport information

Transport hazard class(es)	4.2 	4.2 	4.2 	4.2 	4.2 
Packing group	II	II	II	II	II
Environmental hazards	Yes.	No.	No.	No.	No.

Additional information

- DOT Classification** : This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.
Limited quantity No.
Packaging instruction Exceptions: None. Non-bulk: 212. Bulk: 241.
Quantity limitation Passenger aircraft/rail: 15 kg. Cargo aircraft: 50 kg.
Special provisions IB6, IP2, T3, TP33, W31
- TDG Classification** : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.20-2.22 (Class 4).
Explosive Limit and Limited Quantity Index 0
Passenger Carrying Road or Rail Index 15
Special provisions 16
- Mexico Classification** : **Special provisions** 274
- IMDG** : **Emergency schedules** F-A, S-J
Special provisions 274
- IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 15 kg. Packaging instructions: 467. Cargo Aircraft Only: 50 kg. Packaging instructions: 470. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A3, A803
- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
- Transport in bulk according to Annex II of MARPOL and the IBC Code** : Not available.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
Clean Water Act (CWA) 307: Copper oxide, Activated
- Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed
- Clean Air Act Section 602 Class I Substances** : Not listed

Section 15. Regulatory information

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : SELF-HEATING SUBSTANCES AND MIXTURES - Category 1
 ACUTE TOXICITY (inhalation) - Category 4
 SKIN CORROSION - Category 1B
 SERIOUS EYE DAMAGE - Category 1
 CARCINOGENICITY - Category 1A
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (brain, lungs) - Category 1
 HNOC - Corrosive to digestive tract

Composition/information on ingredients

Name	%	Classification
<input checked="" type="checkbox"/> Carbon, Activated	≥10 - ≤25	SELF-HEATING SUBSTANCES AND MIXTURES - Category 2
<input type="checkbox"/> Copper oxide, Activated	≥10 - ≤19	ACUTE TOXICITY (oral) - Category 4
<input type="checkbox"/> Manganese dioxide, Activated	≥10 - ≤19	OXIDIZING SOLIDS - Category 3 ACUTE TOXICITY (inhalation) - Category 4 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (brain) (inhalation) - Category 2
<input type="checkbox"/> Disodium oxide	≤5	SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract
<input type="checkbox"/> Calcium oxide	<5	ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION - Category 1 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
<input type="checkbox"/> crystalline silica, respirable powder	≤3	CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (lungs) (inhalation) - Category 1

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	<input checked="" type="checkbox"/> Copper oxide, Activated	1317-38-0	≥10 - ≤19
	<input type="checkbox"/> Manganese dioxide, Activated	1313-13-9	≥10 - ≤19
Supplier notification	<input checked="" type="checkbox"/> Copper oxide, Activated	1317-38-0	≥10 - ≤19
	<input type="checkbox"/> Manganese dioxide, Activated	1313-13-9	≥10 - ≤19

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: DIATOMACEOUS EARTH; AMORPHOUS SILICA; ALUMINUM OXIDE; CALCIUM OXIDE; SILICA, CRYSTALLINE, QUARTZ


New York : None of the components are listed.

Section 15. Regulatory information

New Jersey : The following components are listed: COPPER compounds; ALUMINUM OXIDE; alpha-ALUMINA; CALCIUM OXIDE; LIME; SILICA, QUARTZ; QUARTZ (SiO₂)

Pennsylvania : The following components are listed: COPPER COMPOUNDS; MANGANESE COMPOUNDS; SILICA; ALUMINUM OXIDE; CALCIUM OXIDE; QUARTZ DUST; QUARTZ

California Prop. 65

 **WARNING:** This product can expose you to Silica, crystalline, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
 Silica, crystalline	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.


Inventory list

Australia : All components are listed or exempted.

Canada : Not determined.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan :  **Japan inventory (ENCS):** All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.

Malaysia : All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand :  Not determined.

Turkey : All components are listed or exempted.

United States : All components are listed or exempted.

Viet Nam :  Not determined.

Section 16. Other information

History

Date of issue : 03/08/2018
Date of previous issue : 03/24/2016
Version : 2

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> SELF-HEATING SUBSTANCES AND MIXTURES - Category 1 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 CARCINOGENICITY - Category 1A SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (brain, lungs) - Category 1	Expert judgment Calculation method Calculation method Calculation method Calculation method Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

Note * : Observe technical data sheet/instructions for use.