

# SAFETY DATA SHEET



ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

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 - New Cartridge, Part Number G3440-60003  
**Part no.** : G3440-60003

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

**Material uses** :  Reagents and Standards for Analytical Chemistry Laboratory Use  
Sealed cartridge  
0.029 kg

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG  
Hewlett-Packard-Str. 8  
76337 Waldbronn  
Germany  
0800 603 1000

**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

**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

**Product definition** : Mixture (encapsulated in article)

#### Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

|                                          |                                                                 |
|------------------------------------------|-----------------------------------------------------------------|
| <input checked="" type="checkbox"/> H251 | SELF-HEATING SUBSTANCES AND MIXTURES - Category 1               |
| H315                                     | SKIN CORROSION/IRRITATION - Category 2                          |
| H318                                     | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1                  |
| H373                                     | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |
| H400                                     | SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1                  |
| H411                                     | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2                 |

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

**Ingredients of unknown ecotoxicity** :  Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4%

See Section 16 for the full text of the H statements declared above.

**Date of issue/Date of revision** : 08/03/2018

1/14

## SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

#### Hazard pictograms



#### Signal word

: Danger

#### Hazard statements

: H251 - Self-heating: may catch fire.  
H318 - Causes serious eye damage.  
H315 - Causes skin irritation.  
H373 - May cause damage to organs through prolonged or repeated exposure.  
H400 - Very toxic to aquatic life.  
H411 - Toxic to aquatic life with long lasting effects.

#### Precautionary statements

##### Prevention

: P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.  
P235 - Keep cool.  
P273 - Avoid release to the environment.  
P260 - Do not breathe dust.

##### Response

: P314 - Get medical attention if you feel unwell.  
P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.

##### Storage

: P413 - Store bulk masses greater than 15 kg/33 lbs at temperatures not exceeding 100 °C/212 °F.  
P420 - Store separately.

##### Disposal

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

#### Hazardous ingredients

: Disodium oxide  
- Calcium oxide  
- crystalline silica, respirable powder

#### Supplemental label elements

: Not applicable.

#### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

: Not applicable.

#### Special packaging requirements

##### Tactile warning of danger

: Not applicable.

### 2.3 Other hazards

#### Other hazards which do not result in classification

: 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.

### 3.1 Substances

: Mixture (encapsulated in article)

**ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003**

**SECTION 3: Composition/information on ingredients**

| Product/ingredient name               | Identifiers                                            | %         | Regulation (EC) No. 1272/2008 [CLP]                                                                                        | Type    |
|---------------------------------------|--------------------------------------------------------|-----------|----------------------------------------------------------------------------------------------------------------------------|---------|
| Copper oxide, Activated               | EC: 215-269-1<br>CAS: 1317-38-0<br>Index: 029-016-00-6 | ≥10 - <25 | Aquatic Acute 1, H400 (M=100)<br>Aquatic Chronic 1, H410 (M=1)                                                             | [1]     |
| Manganese dioxide, Activated          | EC: 215-202-6<br>CAS: 1313-13-9<br>Index: 025-001-00-3 | ≥10 - ≤22 | Acute Tox. 4, H302<br>Acute Tox. 4, H332                                                                                   | [1] [2] |
| Silicon dioxide                       | EC: 231-545-4<br>CAS: 7631-86-9                        | ≥10 - ≤25 | Not classified.                                                                                                            | [2]     |
| aluminium oxide                       | EC: 215-691-6<br>CAS: 1344-28-1                        | ≤10       | Not classified.                                                                                                            | [2]     |
| Disodium oxide                        | EC: 215-208-9<br>CAS: 1313-59-3                        | <5        | Skin Corr. 1B, H314<br>EUH014                                                                                              | [1]     |
| Calcium oxide                         | EC: 215-138-9<br>CAS: 1305-78-8                        | ≤5        | Acute Tox. 4, H302<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>STOT SE 3, H335<br>EUH014                                 | [1] [2] |
| crystalline silica, respirable powder | EC: 238-878-4<br>CAS: 14808-60-7                       | ≤3        | STOT RE 1, H372 (lungs)<br>(inhalation)<br><br><b>See Section 16 for the full text of the H statements declared above.</b> | [1] [2] |

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.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

**SECTION 4: First aid measures**

**4.1 Description of 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.

## SECTION 4: First aid measures

- 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.
- 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.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Potential acute health effects

- Eye contact** : Causes serious eye damage.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation.
- Ingestion** : Corrosive to the digestive tract. Causes burns.

#### Over-exposure signs/symptoms

- 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 any immediate medical attention and special treatment needed

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

## SECTION 5: Firefighting 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

- Hazards from the substance or mixture** : Self-heating material. May catch fire. This material is very toxic to aquatic life. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 5: Firefighting measures

**Hazardous combustion products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
metal oxide/oxides

### 5.3 Advice for firefighters

**Special precautions 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

## 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 spilt material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**For emergency responders** : If specialised 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 spilt 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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

### 6.3 Methods and material 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.

**6.4 Reference to other sections** : See Section 1 for emergency contact information.  
See Section 8 for information on appropriate personal protective equipment.  
See Section 13 for additional waste treatment information.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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

**Date of issue/Date of revision** : 08/03/2018

5/14

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 7: Handling and storage

**Storage** : 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 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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

### Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|----------|---------------------------------|-------------------------|
| 1        | 100                             | 200                     |

### 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

| Product/ingredient name               | Exposure limit values                                                                                              |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Manganese dioxide, Activated          | <b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b><br>TWA: 0.5 mg/m <sup>3</sup> , (as Mn) 8 hours.             |
| Silicon dioxide                       | <b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b><br>TWA: 6 mg/m <sup>3</sup> 8 hours. Form: inhalable dust    |
| aluminium oxide                       | TWA: 2.4 mg/m <sup>3</sup> 8 hours. Form: respirable dust                                                          |
| Calcium oxide                         | <b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b><br>TWA: 10 mg/m <sup>3</sup> 8 hours. Form: inhalable dust   |
| crystalline silica, respirable powder | <b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b><br>TWA: 2 mg/m <sup>3</sup> 8 hours.                         |
|                                       | <b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b><br>TWA: 0.1 mg/m <sup>3</sup> 8 hours. Form: respirable dust |

**Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### DNELs/DMELs

No DNELs/DMELs available.

### PNECs

No PNECs available



## SECTION 8: Exposure controls/personal protection

### 8.2 Exposure controls

**Appropriate engineering controls** : 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.

### 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.

**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.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

|                                                |                  |
|------------------------------------------------|------------------|
| <b>Physical state</b>                          | : Solid.         |
| <b>Colour</b>                                  | : Not available. |
| <b>Odour</b>                                   | : Not available. |
| <b>Odour threshold</b>                         | : Not available. |
| <b>pH</b>                                      | : Not available. |
| <b>Melting point/freezing point</b>            | : Not available. |
| <b>Initial boiling point and boiling range</b> | : Not available. |
| <b>Flash point</b>                             | : Not available. |
| <b>Evaporation rate</b>                        | : Not available. |
| <b>Flammability (solid, gas)</b>               | : Not available. |

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 9: Physical and chemical properties

|                                              |                  |
|----------------------------------------------|------------------|
| Upper/lower flammability or explosive limits | : Not available. |
| Vapour pressure                              | : Not available. |
| Vapour density                               | : Not available. |
| Relative density                             | : Not available. |
| Solubility(ies)                              | : Not available. |
| Partition coefficient: n-octanol/water       | : Not available. |
| Auto-ignition temperature                    | : Not available. |
| Decomposition temperature                    | : Not available. |
| Viscosity                                    | : Not available. |
| Explosive properties                         | : Not available. |
| Oxidising properties                         | : Not available. |

### 9.2 Other information

No additional information.

## 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:<br>extended contact with air in bulk storage<br>Reactions may include the following:<br>risk of causing fire<br>spontaneous flammability |
| 10.4 Conditions to avoid                | : <input checked="" type="checkbox"/> No specific data.                                                                                                                                                                                                                   |
| 10.5 Incompatible materials             | : May react or be incompatible with oxidising materials.<br><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             | -        |

#### Acute toxicity estimates

Date of issue/Date of revision : 08/03/2018



ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 11: Toxicological information

| Route                                                                    | ATE value                  |
|--------------------------------------------------------------------------|----------------------------|
| <input checked="" type="checkbox"/> Oral<br>Inhalation (dusts and mists) | 4651.2 mg/kg<br>11.25 mg/l |

### Irritation/Corrosion

**Conclusion/Summary** : Not available.

### Sensitiser

**Conclusion/Summary** : Not available.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

| Product/ingredient name                           | Category   | Route of exposure | Target organs                |
|---------------------------------------------------|------------|-------------------|------------------------------|
| <input checked="" type="checkbox"/> Calcium oxide | Category 3 | Not applicable.   | Respiratory tract irritation |

### Specific target organ toxicity (repeated exposure)

| Product/ingredient name                                                   | Category   | Route of exposure | Target organs |
|---------------------------------------------------------------------------|------------|-------------------|---------------|
| <input checked="" type="checkbox"/> crystalline silica, respirable powder | Category 1 | Inhalation        | lungs         |

### Aspiration hazard

Not available.

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

### Potential acute health effects

**Inhalation** : No known significant effects or critical hazards.

**Ingestion** : Corrosive to the digestive tract. Causes burns.

**Skin contact** :  Causes skin irritation.

**Eye contact** : Causes serious eye damage.

### Symptoms related to the physical, chemical and toxicological characteristics

**Inhalation** : No specific data.

**Ingestion** : Adverse symptoms may include the following:  
stomach pains

**Skin contact** : Adverse symptoms may include the following:  
pain or irritation  
redness  
blistering may occur

**Eye contact** : Adverse symptoms may include the following:  
pain  
watering  
redness

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 11: Toxicological information

**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** : May cause damage to organs through prolonged or repeated exposure.

**Carcinogenicity** : No known significant effects or critical hazards.

**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.

## 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 |
| Calcium oxide                | Acute LC50 >100 mg/l Fresh water  | Fish                                                                     | 96 hours |
|                              | 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

| Product/ingredient name | LogP <sub>ow</sub> | BCF  | Potential |
|-------------------------|--------------------|------|-----------|
| Calcium oxide           | -                  | 2.34 | low       |

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

**PBT** : Not applicable.

**vPvB** : Not applicable.

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 12: Ecological information

**12.6 Other adverse effects** : No known significant effects or critical hazards.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

**Methods of disposal** : The generation of waste should be avoided or minimised 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.

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

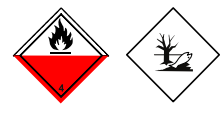


#### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : 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.

## 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.

|                                        | ADR/RID                                                                                          | IMDG                                                                                             | IATA                                                                                           |
|----------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| <b>14.1 UN number</b>                  | UN3190                                                                                           | UN3190                                                                                           | UN3190                                                                                         |
| <b>14.2 UN proper shipping name</b>    | SELF-HEATING SOLID, INORGANIC, N.O.S.<br>(Manganese dioxide, Activated, Copper oxide, Activated) | SELF-HEATING SOLID, INORGANIC, N.O.S.<br>(Manganese dioxide, Activated, Copper oxide, Activated) | Self-heating solid, inorganic, n. o.s. (Manganese dioxide, Activated, Copper oxide, Activated) |
| <b>14.3 Transport hazard class(es)</b> | 4.2<br>       | 4.2<br>       | 4.2<br>   |
| <b>14.4 Packing group</b>              | II                                                                                               | II                                                                                               | II                                                                                             |
| <b>14.5 Environmental hazards</b>      | Yes.                                                                                             | No.                                                                                              | No.                                                                                            |

### Additional information

**Remarks:** Excepted Quantity

**ADR/RID** : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.

**Hazard identification number** 40

**Limited quantity** 0

**Special provisions** 274

**Tunnel code** (D/E)

**Remarks** Excepted Quantity: E2

**IMDG** : **Emergency schedules** F-A, S-J

**Special provisions** 274

**Date of issue/Date of revision** : 08/03/2018

11/14

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 14: Transport information

- 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
- 14.6 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.
- 14.7 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

#### EU Regulation (EC) No. 1907/2006 (REACH)

##### Annex XIV - List of substances subject to authorisation

###### Annex XIV

None of the components are listed.

###### Substances of very high concern

None of the components are listed.

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** :  Not applicable.

#### Other EU regulations

##### Ozone depleting substances (1005/2009/EU)

Not listed.

##### Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

##### Seveso Directive

This product is controlled under the Seveso Directive.

###### Danger criteria

Category

1

#### 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.

ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003

## SECTION 15: Regulatory information

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

|                          |                                                                                                                             |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <b>Australia</b>         | : All components are listed or exempted.                                                                                    |
| <b>Canada</b>            | : Not determined.                                                                                                           |
| <b>China</b>             | : All components are listed or exempted.                                                                                    |
| <b>Europe</b>            | : All components are listed or exempted.                                                                                    |
| <b>Japan</b>             | : <b>Japan inventory (ENCS)</b> : All components are listed or exempted.<br><b>Japan inventory (ISHL)</b> : Not determined. |
| <b>Malaysia</b>          | : All components are listed or exempted.                                                                                    |
| <b>New Zealand</b>       | : All components are listed or exempted.                                                                                    |
| <b>Philippines</b>       | : All components are listed or exempted.                                                                                    |
| <b>Republic of Korea</b> | : All components are listed or exempted.                                                                                    |
| <b>Taiwan</b>            | : All components are listed or exempted.                                                                                    |
| <b>Thailand</b>          | : <input checked="" type="checkbox"/> Not determined.                                                                       |
| <b>Turkey</b>            | : All components are listed or exempted.                                                                                    |
| <b>United States</b>     | : All components are listed or exempted.                                                                                    |
| <b>Viet Nam</b>          | : <input checked="" type="checkbox"/> Not determined.                                                                       |

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number

### Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

| Classification                                                                                                                                                           | Justification                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Self-heat. 1, H251<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>STOT RE 2, H373<br>Aquatic Acute 1, H400<br>Aquatic Chronic 2, H411 | Expert judgment<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method<br>Calculation method |

### Full text of abbreviated H statements

|                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> H251<br>H302<br>H314<br>H315<br>H318<br>H332<br>H335<br>H372 (inhalation)<br><br>H373<br><br>H400 | Self-heating: may catch fire.<br>Harmful if swallowed.<br>Causes severe skin burns and eye damage.<br>Causes skin irritation.<br>Causes serious eye damage.<br>Harmful if inhaled.<br>May cause respiratory irritation.<br>Causes damage to organs through prolonged or repeated exposure if inhaled.<br>May cause damage to organs through prolonged or repeated exposure.<br>Very toxic to aquatic life. |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Date of issue/Date of revision** : 08/03/2018

13/14

**ReNEWable Gas Purifier - New Cartridge, Part Number G3440-60003**

**SECTION 16: Other information**

|      |                                                       |
|------|-------------------------------------------------------|
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic to aquatic life with long lasting effects.      |

**Full text of classifications [CLP/GHS]**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Acute Tox. 4, H302<br/>                 Acute Tox. 4, H332<br/>                 Aquatic Acute 1, H400<br/>                 Aquatic Chronic 1, H410<br/>                 Aquatic Chronic 2, H411<br/>                 EUH014<br/>                 Eye Dam. 1, H318<br/>                 Self-heat. 1, H251<br/>                 Skin Corr. 1B, H314<br/>                 Skin Irrit. 2, H315<br/>                 STOT RE 1, H372 (inhalation)</p> <p>STOT RE 2, H373</p> <p>STOT SE 3, H335</p> | <p>ACUTE TOXICITY (oral) - Category 4<br/>                 ACUTE TOXICITY (inhalation) - Category 4<br/>                 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1<br/>                 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1<br/>                 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2<br/>                 Reacts violently with water.<br/>                 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1<br/>                 SELF-HEATING SUBSTANCES AND MIXTURES - Category 1<br/>                 SKIN CORROSION/IRRITATION - Category 1B<br/>                 SKIN CORROSION/IRRITATION - Category 2<br/>                 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE (inhalation) - Category 1<br/>                 SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2<br/>                 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3</p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Date of issue/ Date of revision** : 08/03/2018

**Date of previous issue** : 24/03/2016

**Version** : 2

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

**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.