

MATERIAL SAFETY DATA SHEET

1 Product and Company Identification

Product Name: Helium, Hydrogen, and Nitrogen Purifiers

Company Name:

VIGI[®] Metronics Inc

26272 Twelve Trees Ln NW
Poulsbo, WA 98370

Emergency Contact Number

1-877-737-1887 or 1-360-697-9199

2 Composition

Ingredient	CAS No.	Wt%	ACGIH TLB-TWA	OSHA PEL-TWA
Silicon oxide (synthetic)	7631-86-9	< 60	10 mg/m ³ Inhalable 3 mg/m ³ Respirable	15 mg/m ³ Total dust 5 mg/m ³ Respirable fraction
Aluminum oxide (non-fibrous)	1344-28-1	< 40	10 mg/m ³	15 mg/m ³ Total dust 5 mg/m ³ Respirable dust
Copper	7440-50-8	< 30	1 mg/m ³ Dust & mist as Cu	1 mg/m ³ Dust & mist as Cu
Zinc Oxide	1314-13-2	< 15		15 mg/m ³ Total dust 5 mg/m ³ Respirable dust as Al
Sodium oxide	1313-59-3	< 5	N/E	N/E

Abbreviations:

N/E - None established

CAS - Chemical Abstracts Service

ACGIH - American Conference of Governmental Industrial Hygienists

TLV - Threshold Limit Value

OSHA - Occupational Safety and Health Administration - USA

TWA - Time Weighted Average

PEL - Permissible Exposure Limit

STEL - Short-Term Exposure Limit

Emergency Overview

This product is in a sealed container. Exposure can only take place if the integrity of the container is compromised. In case the container is opened, the contained product can cause irritation to the eyes, skin, or upper respiratory system. Cobalt and cobalt compounds are classified as possible human carcinogens. Quartz may cause cancer.

Potential Health Effects

Primary Routes of Exposure: The product is in a sealed container. As long as the container is not opened, exposure should not take place.

Skin Contact: Prolonged or repeated exposures may cause dermatitis or an allergic skin reaction.

Eye Contact: Dust and/or product may cause eye discomfort and/or irritation seen as tearing and reddening.

Ingestion: This product is slightly toxic by ingestion.

Inhalation: Inhalation of product and/or dust may cause irritation of the respiratory system.

Target Organ: Prolonged or repeated exposure may cause lung injury or cancer.

Carcinogenicity Classification

International Agency for Research on Cancer (IARC)

Silicon oxide (synthetic) - Not classifiable as human carcinogen (Group 3)

U.S. National Toxicology Program (NTP)

Not Regulated

U.S. Occupational Safety and Health Administration (OSHA)

Not Regulated

Skin Contact: Wash affected area with soap and water. If irritation develops, obtain medical attention.

Eye Contact: Flush with water for at least 15 minutes. If irritation occurs, obtain medical attention.

Ingestion: Do not induce vomiting. Obtain medical attention.

Inhalation: Remove affected person to fresh air. If respiratory problems develop, obtain medical attention.

Notes to Physician: Hydrocarbons and other materials that contact the product during normal use can be retained on the product. The retained materials may be hazardous. Identify the retained material and treat accordingly.

Flash Point: Unused material will not burn.

Extinguishing Media: Use media appropriate for surrounding fire.

Fire and Explosion Hazards: Used material may contain materials of a hazardous nature. The user of this product must identify the hazards of the retained material and inform the fire fighters of these hazards.

6**Accidental Release Measures**

- Large Spill:** Isolate the affected areas. Confine entry into the affected area to those persons properly protected. Special attention should be given to eye, skin, and respiratory protection because recovery of dry product is expected to generate dust. Sweep, shovel or vacuum spilled product into appropriate containers. (Do not use a vacuum if material has contacted a hydrocarbon material.)
- Small Spill:** Sweep or vacuum spilled product into appropriate container. (Do not use a vacuum if material has contacted a hydrocarbon.) Product should be disposed in accordance with all applicable government regulations. See section 13 of MSDS, Disposal Information.

7**Handling and Storage**

The product is in sealed containers. In the event the seal on the container is breached, store the product in tightly closed, properly labeled containers. Store out of direct sunlight. Store in dry area.

8**Exposure Controls and Personal Protection**

- Respiratory Protection:** Product is in a sealed container. As long as the seal on the container is not breached, respiratory protection is not needed. If the container seal is breached and natural ventilation is inadequate, use mechanical ventilation, other engineering controls, or a toxic dust respirator (in USA - NIOSH/MSHA approved) to prevent inhalation of product dust.
- Skin Protection:** Use gloves to avoid prolonged or repeated skin contact.
- Eye Protection:** Safety glasses or goggles as necessary to prevent eye contact.

9**Physical and Chemical Properties**

These data do not represent technical or sales specifications.

Appearance:	Material is in a sealed container
Odor:	None
pH:	Not applicable
% Volatile:	Not applicable
Pour Point:	Not applicable
Viscosity:	Not applicable
Vapor Density:	Not applicable
Specific Gravity:	Not applicable
Apparent Bulk Density:	0.7 ± 0.2 g/cc
Solubility in Water:	Negligible
Boiling Point:	Not applicable
Freezing Point:	Not applicable
Melting Point:	Not applicable
Vapor Pressure	Not applicable

10**Stability**

<i>Stability:</i>	Stable.
<i>Conditions to Avoid:</i>	None known.
<i>Hazardous Decomposition Products:</i>	Hydrocarbons and other materials that contact the product during normal use can be retained on the product. It is reasonable to expect that decomposition products will come from these retained materials of use.
<i>Hazardous Polymerization:</i>	Will not occur.
<i>Incompatible Materials:</i>	Contact with acids may cause leaching of metals.

11**Toxicological Information**

<i>Acute Oral Toxicity:</i>	An oral LD ₅₀ is not available for this product.
<i>Acute Dermal Toxicity:</i>	A dermal LD ₅₀ is not available for this product.
<i>Acute Inhalation Toxicity:</i>	An inhalation LC ₅₀ is not available for this product
<i>Irritation:</i>	No data for this product.

Additional Toxicological Information:

<i>Aluminum oxide:</i>	Inhalation of finely divided particles may cause lung damage. Intrapleural TD _{LO} : 90 mg/kg (rat). Implant TD _{LO} : 200 mg/kg (rat). TD _{LO} is Toxic Dose Low.
<i>Silicon oxide:</i>	Exposure can cause lung disease called silicosis, with cough and shortness of breath.

12**Ecological Information**

No data is available for the product.

13**Disposal Information**

Dispose of the product in accordance with all applicable government regulations. This product (in its fresh unused state) is not listed by generic name or trademark name in the U.S. EPA's Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management Regulations and does not possess any of the four identifying characteristics of hazardous waste (ignitability, corrosivity, reactivity, or toxicity).

14**Transportation Information**

<i>U.S. Department of Transportation Shipping Name:</i>	Not regulated.
<i>International Maritime Organization (IMO):</i>	Not regulated.

United States**TSCA** (*Toxic Substances Control Act*):

All the ingredients of this mixture are listed on the TSCA Chemical Substance Inventory.

CERCLA (*Comprehensive Environmental Response, Compensation, and Liability Act*) **Reportable Quantity**:

The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

—None—

SARA (*Superfund Amendments and Reauthorization Act of 1986*) **Title III**:**Section 302** (Extremely Hazardous Substances):

The following component(s) of this product is/are subject to the emergency planning provisions of 40 CFR 355 when there are amounts equal or greater than the Threshold Planning Quantity (TPQ):

—None—

Section 313 (Toxic Chemicals):

The following component(s) have been specified as Toxic Chemicals under SARA Section 313 and may be subject to the Toxic Release Inventory (TRI) reporting requirements under 40 CFR 372:

Copper compounds

State Community Right-to-Know Legislation

The following component(s) of this product are regulated under California's Proposition 65:

—None—

European Union (EU)**European Inventory of Existing Commercial Chemical Substances**:

All components of this preparation are included in EINECS/ELINCS.

Aluminum oxide (non-fibrous)	2156916
Silicon oxide (synthetic)	2315454
Copper oxide	2152691
Zinc oxide	2152225
Sodium oxide	2152089

Council of European Communities Directive on Classification, Packaging and Labelling of Dangerous Substances/Preparation (67/548/EEC & 88/379/EEC):

R43	May cause sensitization by skin contact.
S24	Avoid contact with skin.
S36/37/39	Wear suitable protective clothing, gloves, and eye/face protection.
Xi	Irritant

Canada**Canadian Hazard Products Act**:

This product is not classified as a controlled product under regulations pursuant to the federal Hazardous Product Act (e.g. WHMIS).

Revision 3

Summary of Changes: Sections 2, 3, 13, 15 (U.S.)
I.D./Form: MS0004
Supersedes: October 2001

Revision 4

Summary of Changes: Section 2
I.D./Form: MS0004
Supersedes: April 2006

Revision 5

Summary of Changes: Section 1
I.D./Form: MS0004
Supersedes: July 2007

Revision 6

Summary of Changes: Section 1, 15 (EU)
I.D./Form: MS0004
Supersedes: November 2008

HMIS™ - Hazardous Materials Identification System

HMIS™ Ratings

HEALTH	1
FLAMMABILITY	0
REACTIVITY	0

0 - minimal hazard
 1 - slight hazard
 2 - moderate hazard
 3 - serious hazard
 4 - severe hazard
 * - may cause cancer