

Safety Data Sheet

Super Clean Filter Cartridge, Super Clean Click-On Inline Filter Cartridge

Date of Issue: 22-10-2010

Version: 1

1. Identification of the substance/preparation and company/undertaking

Identification of the substance or preparation

Product Name Super Clean Filter Cartridge, Super Clean Click-On Inline Filter Cartridge

Material Contents

Material	Cartridge Type					
	Triple	Oxygen	Moisture	Hydrocarbon	Combi (Hydrocarbon & Moisture)	Combi (Oxygen & Moisture)
Charcoal	X			X	X	
Molsieve	X		X		X	X
Silica Gel	X		X		X	X
Indicating Oxygen Absorber	X	X				X
Oxygen Catalyst	X	X				X

This Safety Data Sheet is written based on the content of this product.

Company/undertaking identification

Manufacturer Scientific Glass Technology Singapore Pte Ltd
83 Science Park Drive
#01-01 The Curie
Singapore Science Park I
Singapore 118258

Use of the Substance / Preparation Analytical chemistry. multi-gas/vapour filter

E-mail address of person responsible for this SDS admin@sgtnl.com

Emergency telephone number Contact your local Poison Centre

2. Hazards identification

The preparation is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification

Material	Classification
Charcoal	Not classified.
Molsieve	Not classified.
Silica Gel	Xi; R37
Indicating Oxygen Absorber	Xn; R20/22
Oxygen Catalyst	Carc. Cat. 1; R49

Human health hazards

Material	Hazard
Charcoal	Not applicable.
Molsieve	Not applicable.
Silica Gel	Irritating to respiratory system.
Indicating Oxygen Absorber	Harmful by inhalation and if swallowed.
Oxygen Catalyst	May cause cancer by inhalation.

3. Composition/information on ingredients

Substance/preparation

Material	Substance/preparation
Charcoal	Substance
Molsieve	Substance
Silica Gel	Substance
Indicating Oxygen Absorber	Preparation
Oxygen Catalyst	Preparation

Ingredients

Material Name Ingredient name	CAS number	%	EC number	Classification
Charcoal				
Carbon	7440-44-0	25	231-153-3	Not classified.
Molsieve				
Zeolites	1318-02-1	18.8	215-283-8	Not classified.
Silica Gel				
Silica gel ,pptd.,cryst.-free	12926-00-8	9.3	Not available.	Xi;R37 [1]
Indicating Oxygen Absorber				

Manganese dioxide	1313-13-9	5.445	215-202-6	Xn;R20/22	[1][2]
Sulphuric acid	7664-93-9	0.055	231-639-5	C;R35	[1][2]
Oxygen Catalyst					
Aluminium oxide	1344-28-1	15-40	215-691-6	Not classified.	[2]
Copper oxide	1317-38-0	3-7	215-269-1	Xn;R22 N;R50	[1][2]
Manganese dioxide	1313-13-9	0.1-1	215-202-6	Xn;R20/22	[1][2]
Nickel monoxide	1313-99-1	0.1-1	215-215-7	Carc.Cat.1; R49 R43 R53	[1][2]
Tricobalt tetraoxide	1308-06-1	0.1-1	215-157-2	R43	[1][2]

See section 16 for the full text of the R-phrases declared above

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. However, use or processing of the product in a manner not in accordance with the product's directions for use may affect the performance of the product and may present potential health and safety hazards.

[1] Substance classified with a health or environmental hazard

[2] Substance with a work place exposure limit

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

4. First-aid measures

Inhalation	If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention if adverse health effects persist or are severe.
Ingestion	Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if adverse health effects persist or are severe.
Skin contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if adverse health effects persist or are severe.
Eye contact	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if adverse health effects persist or are severe.
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 or wear gloves.

Notes to physician

No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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

5. Fire-fighting measures

Extinguishing media

Suitable Use an extinguishing agent suitable for the surrounding fire.

Not Suitable Not applicable.

Hazardous thermal decomposition products

Material	Decomposition products
Charcoal	Decomposition products may include the following materials: carbon oxides
Molsieve	Decomposition products may include the following materials: metal oxide/oxides
Silica Gel	No specific data.
Indicating Oxygen Absorber	Decomposition products may include the following materials: metal oxide/oxides
Oxygen Catalyst	Decomposition products may include the following materials: metal oxide/oxides

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.

6. Accidental release measures

Personal precautions 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).

Environmental precautions Avoid dispersal of spilt material and run off and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Small spill Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.

7. Handling and storage

Handling Do not ingest. Avoid contact with eyes, skin and clothing. Keep container closed. Use only with adequate ventilation. Avoid breathing vapour or mist. Wash thoroughly after handling.

Storage Store in accordance with local regulations. Store in a cool, well-ventilated area away from incompatible materials and ignition sources. Use appropriate containment to avoid environmental contamination.

Packaging materials

Recommended Use original container.

8. Exposure controls/personal protection

Ingredient Name	Occupational exposure limits
Indicating Oxygen Absorber Manganese dioxide	ACGIH TLV (United States, 1/2008). Notes: as Mn TWA : 0.2 mg/m ³ , (as Mn) 8 hour(s).
Oxygen Catalyst Nickel monoxide	ACGIH TLV (United States, 1/2008). Notes: as Ni TWA : 0.2 mg/m ³ , (as Ni) 8 hour(s). Form: Insoluble

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

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 European Standard EN689 for methods for the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.

Exposure controls

Occupational exposure controls If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Respiratory protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
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.
Eye 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.
Skin 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.
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 re using. Ensure that eyewash stations and safety showers are close to the workstation location.
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.

9. Physical and chemical properties

General information

Appearance

Material	Physical state	Colour	Odour
Charcoal	Solid.	Black.	Odourless.
Molsieve	Solid.	Beige.	Odourless.
Silica Gel	Solid.	Orange.	Odourless.
Indicating Oxygen Absorber	Solid. [Powder.]	Dark grey.	Odourless.
Oxygen Catalyst	Solid.	Green to black.	Odourless.

Important health, safety and environmental information

Melting point

Material	Melting point
Charcoal	Not available.
Molsieve	>1200°C (2192°F) This is based on data for the following ingredient: Zeolites.
Silica Gel	>1000°C (1832°F)
Indicating Oxygen Absorber	534.8°C (994.6°F) This is based on data for the following ingredient: Manganese dioxide.
Oxygen Catalyst	2050°C (3722°F) This is based on data for the following ingredient: Aluminium oxide.

Explosive properties

Slightly explosive in the presence of the following materials or conditions: heat, oxidizing materials and reducing materials.

Solubility

Material	Solubility
Charcoal	Insoluble in the following materials: cold water and hot water.
Molsieve	Insoluble in the following materials: cold water and hot water.
Silica Gel	Not available.
Indicating Oxygen Absorber	Insoluble in the following materials: cold water and hot water.
Oxygen Catalyst	Insoluble in the following materials: cold water and hot water.

Auto-ignition temperature

Material	Auto-ignition temperature
Charcoal	>400°C (752°F)
Molsieve	Not applicable.
Silica Gel	Not applicable.
Indicating Oxygen Absorber	Not applicable.
Oxygen Catalyst	Not applicable.

10. Stability and reactivity

Stability The product is stable. Under normal conditions of storage and use, hazardous polymerisation will not occur.

Materials to avoid Reactive or incompatible with the following materials: oxidizing materials, reducing materials and metals.

Hazardous decomposition products

Material	Hazardous decomposition products
Charcoal	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Molsieve	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Silica Gel	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Indicating Oxygen Absorber	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Oxygen Catalyst	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological information

Potential acute health effects

Inhalation

Material	Health effects
Charcoal	No known significant effects or critical hazards.
Molsieve	No known significant effects or critical hazards.
Silica Gel	Irritating to respiratory system.
Indicating Oxygen Absorber	Harmful by inhalation. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Oxygen Catalyst	No known significant effects or critical hazards.

Ingestion

Material	Health effects
Charcoal	No known significant effects or critical hazards.
Molsieve	No known significant effects or critical hazards.
Silica Gel	No known significant effects or critical hazards.
Indicating Oxygen Absorber	Harmful if swallowed.
Oxygen Catalyst	No known significant effects or critical hazards.

Skin contact

Material	Health effects
Charcoal	No known significant effects or critical hazards.
Molsieve	No known significant effects or critical hazards.
Silica Gel	No known significant effects or critical hazards.
Indicating Oxygen Absorber	No known significant effects or critical hazards.
Oxygen Catalyst	No known significant effects or critical hazards.

Eye contact

Material	Health effects
Charcoal	No known significant effects or critical hazards.
Molsieve	No known significant effects or critical hazards.
Silica Gel	No known significant effects or critical hazards.
Indicating Oxygen Absorber	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Oxygen Catalyst	No known significant effects or critical hazards.

Product/ingredient name	Result	Species	Dose	Exposure
Manganese dioxide	LD50 Oral	Rat	3478 mg/kg	-
Copper oxide	LD50 Oral	Rat	470 mg/kg	-
Nickel monoxide	LD50 Oral	Rat	>5000 mg/kg	-
Tricobalt tetraoxide	LD50 Oral	Rat	>5 gm/kg	-

Chronic effects

No known significant effects or critical hazards.

Carcinogenicity

May cause cancer by inhalation. 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.

Dose

Contains a substance or substances listed under National Working Environment Authorities Executive Order 140/1997.

Over-exposure signs/symptoms

Inhalation	No specific data.
Ingestion	No specific data.
Skin	No specific data.
Eyes	No specific data.
Target organs	Contains material which may cause damage to the following organs: cardiovascular system, upper respiratory tract.

Material	
Charcoal	Not available.
Molsieve	Not available.
Silica Gel	Contains material which may cause damage to the following organs: blood, kidneys, upper respiratory tract, central nervous system (CNS).
Indicating Oxygen Absorber	Contains material which causes damage to the following organs: the nervous system.
Oxygen Catalyst	Contains material which may cause damage to the following organs: lungs, upper respiratory tract, skin, eye, lens or cornea.

Other adverse effects

Material	Effects
Charcoal	Not available.
Molsieve	Not available.
Silica Gel	Adverse symptoms may include the following: May cause skin dryness and irritation.
Indicating Oxygen Absorber	Not available.
Oxygen Catalyst	Not available.

12. Ecological information

Environmental effects No known significant effects or critical hazards.

Product/ingredient name	Test	Result	Species	Exposure
Copper oxide	-	Acute EC5011 to 39 ug/L Fresh water	Daphnia	48 hours
	-	Acute	Fish	96 hours

	LC50>56000000 ug/L Fresh water		
-	Acute LC50 25.4 to 29.5 ppm Fresh water	Fish	96 hours

Other adverse effects No known significant effects or critical hazards.

13. Disposal considerations

Methods of disposal The generation of waste should be avoided or minimised where ever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

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

14. Transport information

Regulatory information

ADR / IMDG / IATA Not regulated.

15. Regulatory information

EU regulations

Hazard symbol or symbols

Material	Classification Symbol
Charcoal	Not applicable.
Molsieve	Not applicable.
Silica Gel	Xi – Irritant
Indicating Oxygen Absorber	Xn – Harmful
Oxygen Catalyst	T – Toxic

Risk phrases

Material	Risk Phrase
Charcoal	Not applicable.
Molsieve	Not applicable.
Silica Gel	Xi - Irritant
Indicating Oxygen Absorber	Xn - Harmful
Oxygen Catalyst	T - Toxic

Safety phrases

S53 – Avoid exposure – obtain special instructions before use.

S36 – Wear suitable protective clothing.

Contains

Indicating Oxygen Absorber Manganese dioxide 215-202-6

Oxygen Catalyst Nickel monoxide 215-215-7

Product use

Material	Use
Charcoal	Industrial applications.
Molsieve	Industrial applications.
Silica Gel	Industrial applications.
Indicating Oxygen Absorber	Industrial applications.
Oxygen Catalyst	Industrial applications.

Other EU regulations

Additional warning phrases Contains nickel monoxide. May produce an allergic reaction.

Child protection Yes, applicable.

Tactile warning of danger Yes, applicable.

Restrictions on the Marketing and Use Directive Restricted to professional users.

16. Other information

Full text of R-phrases referred to in sections 2 and 3 - Europe

Material	Full Text of R-phrase
Charcoal	This product is not classified according to EU legislation
Molsieve	This product is not classified according to EU legislation
Silica Gel	R37 – Irritating to respiratory system.
Indicating Oxygen Absorber	R20/22 – Harmful by inhalation and if swallowed.
Oxygen Catalyst	R49 – May cause cancer by inhalation. R22 – Harmful if swallowed. R43 – May cause sensitisation by skin contact. R50 – Very toxic to aquatic organisms. R53 – May cause long-term adverse effects in the aquatic environment.

Full text of classifications referred to in sections 2 and 3 - Europe

Material	Full Text of Classification
Charcoal	Not applicable.
Molsieve	Not applicable.
Silica Gel	Xi - Irritant
Indicating Oxygen Absorber	Xn - Harmful
Oxygen Catalyst	Carc. Cat. 1 - Carcinogen Category 1 Xn – Harmful N – Dangerous for the environment

Notice to reader

DISCLAIMER: This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing the suitability of the Product for a particular application.