

# 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
<b>Charcoal</b>	Not classified.
<b>Molsieve</b>	Not classified.
<b>Silica Gel</b>	Xi; R37
<b>Indicating Oxygen Absorber</b>	Xn; R20/22
<b>Oxygen Catalyst</b>	Carc. Cat. 1; R49

### Human health hazards

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

## 3. Composition/information on ingredients

### Substance/preparation

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

### Ingredients

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

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]
<b>Oxygen Catalyst</b>					
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

<b>Inhalation</b>	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.
<b>Ingestion</b>	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.
<b>Skin contact</b>	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.
<b>Eye contact</b>	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.
<b>Protection of first-aiders</b>	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
<b>Charcoal</b>	Decomposition products may include the following materials: carbon oxides
<b>Molsieve</b>	Decomposition products may include the following materials: metal oxide/oxides
<b>Silica Gel</b>	No specific data.
<b>Indicating Oxygen Absorber</b>	Decomposition products may include the following materials: metal oxide/oxides
<b>Oxygen Catalyst</b>	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
<b>Indicating Oxygen Absorber</b> Manganese dioxide	<b>ACGIH TLV (United States, 1/2008). Notes: as Mn</b> TWA : 0.2 mg/m <sup>3</sup> , (as Mn) 8 hour(s).
<b>Oxygen Catalyst</b> Nickel monoxide	<b>ACGIH TLV (United States, 1/2008). Notes: as Ni</b> TWA : 0.2 mg/m <sup>3</sup> , (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.

<b>Respiratory protection</b>	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.
<b>Hand protection</b>	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.
<b>Eye protection</b>	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.
<b>Skin protection</b>	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.
<b>Hygiene measures</b>	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.
<b>Environmental exposure controls</b>	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
<b>Charcoal</b>	Solid.	Black.	Odourless.
<b>Molsieve</b>	Solid.	Beige.	Odourless.
<b>Silica Gel</b>	Solid.	Orange.	Odourless.
<b>Indicating Oxygen Absorber</b>	Solid. [Powder.]	Dark grey.	Odourless.
<b>Oxygen Catalyst</b>	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
<b>Charcoal</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Molsieve</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Silica Gel</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Indicating Oxygen Absorber</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Oxygen Catalyst</b>	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
<b>Charcoal</b>	No known significant effects or critical hazards.
<b>Molsieve</b>	No known significant effects or critical hazards.
<b>Silica Gel</b>	Irritating to respiratory system.
<b>Indicating Oxygen Absorber</b>	Harmful by inhalation. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
<b>Oxygen Catalyst</b>	No known significant effects or critical hazards.

**Ingestion**

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



**Skin contact**

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

**Eye contact**

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

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

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

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

### Other adverse effects

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

## 12. Ecological information

**Environmental effects** No known significant effects or critical hazards.

Product/ingredient name	Test	Result	Species	Exposure
<b>Copper oxide</b>	-	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

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**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.