

# MATERIAL SAFETY DATA SHEET

## **radiello**<sup>®</sup>: adsorbing cartridge code 169

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## 1. Product and company identification

### 1.1 Product identification

radiello<sup>®</sup>: adsorbing cartridge code 169

#### 1.1.1 Use

Sampling substrate for environmental assays of gaseous hydrochloric acid, which is adsorbed by the silica gel, extracted with water and then quantified by ion chromatography as chloride ions.

#### 1.1.2 Trade name

Adsorbing cartridge code 169

### 1.2 Company identification

#### 1.2.1 Name of supplier Address

Fondazione Salvatore Maugeri  
Centro di Ricerche Ambientali/Padova  
Via Svizzera 16, 35127 Padova  
E-mail: fsmgd@fsm.it

#### Telephone number

Tel. 0498 064 511 - Fax 0498 064 555

### 1.3 Emergency contact number

National Toxicology Center

Tel. 0382 24444

## 2. Composition. Information on ingredients

The sampling device is a stainless steel net loaded with silica gel 0.1-0.4 mm particle size. Gaseous hydrochloric acid is adsorbed by the silica gel, extracted with water and then quantified by ion chromatography as chloride ions. Sampling is specific for hydrochloric acid: its airborne salts are not able to cross the diffusive membrane of the radiello.

<i>Ingredients</i>	<i>%</i>	<i>Symbol</i>	<i>R phrases</i>
SILICA GEL (CAS 112926-00-8 CE 231-545-4)		not required	not required

## 3. Health hazard identification

The product is not classified as dangerous to either man or the environment according to directive 1999/45 and Law N. 65 of 14/03/03 (Hazardous Products).

## 4. First aid measures

### 4.1 General indications

In the case of doubt or in the presence of symptoms consult a doctor, taking a copy of this material safety data sheet.  
Do not administer any substances by mouth to an unconscious person.

### 4.2 First aid procedures in the case of:

#### 4.2.1 Inhalation

Inhalation of the product is not foreseen in normal conditions of its use. However, should inhalation occur, it is not expected that there would be effects deriving from inhalation of airborne substances that could be released from the product. In the case of respiratory symptoms (cough, dyspnea) move the person to fresh air, place in a semi-seated position, and provide artificial respiration if the person is not breathing.

#### 4.2.2 Contact with the skin

Wash the skin with soap and flush with running water for several minutes. Consult a doctor if there are symptoms of irritation (reddening, pain).

#### 4.2.3 Contact with the eyes

The product is not expected to come in contact with the eyes during normal conditions of its use. However, should this occur, flush the eyes, kept open, with large amounts of running water for at least 15 minutes. Consult a doctor if symptoms of irritation (reddening, pain) develop.

#### 4.2.4 Ingestion

It is not expected that the product can be ingested during normal conditions of use. However, should this occur, do not administer anything to drink. Only rinse the mouth and consult a doctor.

## 5. Fire fighting measures

The product is not combustible.

In the case of a fire in a closed environment (e.g. in a warehouse in which the product is stored) follow the rules below:

### 5.1 General indications

Move all people away and upwind of the fire. Do not enter closed rooms without adequate protection, as specified in point 5.5.

### 5.2 Extinguishing media

Water spray, carbon dioxide, foams, powders.

### 5.3 Extinguishing media that must not be used

Not known.

- 5.4 Exposure risks in the case of fire** Irritant or toxic fumes may develop in the case of fire. Refer to point 11.2 for symptoms.
- 5.5 Fire fighting equipment** Use personal protective devices suitable for fighting the fire.

## **6. Accidental release measures**

- 6.1 Personal precautions** It is advisable to protect the skin when handling the product. Avoid contact with the skin and eyes.
- 6.2 Environmental precautions** Given the amount of the product and the way it is packaged it is not possible to cause accidental damage to the environment. Do not dispose of the product (or part of it) in the environment.
- 6.3 Cleaning-up methods**
- 6.3.1 Decontamination** In the case of spills, minimize dust formation. Sweep up the product completely and send it for correct disposal. Wash away the last traces with abundant water.
- 6.3.2 Elimination** Eliminate the contaminated aqueous solution in conformity with existing regulations.

## **7. Handling and storage**

### **7.1 Handling**

- 7.1.1 Technical measures** There are no specific technical requirements for handling the product.
- 7.1.2 Precautionary measures** Avoid contact with the eyes, skin and clothes. Avoid prolonged and repeated exposures. Do not smoke.

### **7.2 Storage**

- 7.2.1 Technical measures** Take the necessary measures to avoid accidental spills of the product in the case of breakage of the containers.
- 7.2.2 Storage conditions** Store in original containers or other appropriately labeled, suitable containers. Store in a cool, dry environment away from sources of heat.

## 8. Exposure control. Personal protection

- |  |  |
|--|--|
| <b>8.1 General hygiene measures</b>        | Respect existing safety regulations and use according to the recommendations of the supplier, as indicated in point 7.1. Ensure good ventilation. Wash hands after handling the product. |
| <b>8.2 Limits of occupational exposure</b> | Limits of occupational exposure have not been established for the components of the product.   |
| <b>8.3 Personal protection measures</b>    |  |
| <b>8.3.1 Respiratory protection</b>        | Not necessary during normal use of the product.  |
| <b>8.3.2 Eye protection</b>                | Wear protective glasses when the adsorbing substrate is subjected to laboratory analysis in order to prevent splashes of solution entering the eyes.                                     |
| <b>8.3.3 Hand protection</b>               | Wear appropriate protective gloves   |
| <b>8.3.4 Skin protection</b>               | Wear work clothes or suitable protective clothing.   |

## 9. Physical and chemical properties

- |   |   |
|---|---|
| <b>9.1 Physical state</b>                             | Metal net cylinder containing solid granules. |
| <b>9.2 Color</b>                                      | White.  |
| <b>9.3 Odor</b>                                       | Odorless.                                     |
| <b>9.4 pH</b>   | Not applicable.                               |
| <b>9.5 Boiling point</b>                              | Not applicable.                               |
| <b>9.6 Melting point</b>                              | Not applicable.                               |
| <b>9.7 Flash point</b>                                | Not inflammable.                              |
| <b>9.8 Flammability</b>                               | Not inflammable                               |
| <b>9.9 Auto-ignition</b>                              | Not inflammable                               |
| <b>9.10 Explosive properties</b>                      | Not known.                                    |
| <b>9.11 Combustion properties</b>                     | Not known.                                    |
| <b>9.12 Vapor pressure</b>                            | Not applicable.                               |
| <b>9.13 Relative density</b>                          | ca. 75g/100mL.                                |
| <b>9.14 Solubility in water</b>                       | Not soluble.                                  |
| <b>9.15 Solubility in organic solvents</b>            | Not applicable.                               |
| <b>9.16 Partition coefficient<br/>n-octanol/water</b> | Not applicable.                               |

<b>9.17 Water absorption capacity</b>	> 30% (after 24 hours of exposure at a R.H. of 80%)
<b>9.18 Miscibility</b>	Not applicable.
<b>9.19 Evaporation rate</b>	Not applicable.
<b>9.20 Conductivity</b>	Not applicable.
<b>9.21 Drying loss</b>	ca. 2%

## 10. Stability and reactivity

<b>10.1 Conditions to avoid</b>	Stable product, avoid exposure to humid conditions.
<b>10.2 Materials to avoid</b>	Strong acids and hydrofluoric acid.
<b>10.3 Hazardous decomposition products</b>	There is no information on possible decomposition products.

## 11. Toxicological information

<b>11.1 Acute toxicity</b>	Amorphous silica is not considered a human carcinogen.
<b>11.2 Effects harmful to health</b>	It is not expected that the product can be dangerous. Contact with the product can cause irritation of the skin and eyes. Inhalation can cause irritation.

## 12. Ecological information

The product is insoluble in water so if correct handling procedures are used, no ecological problems can be expected.

## 13. Disposal considerations

For disposal purposes, the product (or part of it) is considered as special waste. After use, the material must be disposed of in conformity with the disposal of other laboratory products. Contact a Center authorized to dispose of this type of waste. Do not dispose of the product in the environment.

<b>13.1 Product disposal</b>	Contact a business legally authorized to dispose of chemical residues, and comply with internal regulations concerning the protection of the environment.
<b>13.2 Contaminated packaging</b>	Contaminated containers should be dealt with in the same way

as the product.

## 14. Transport information

<b>14.1 General information</b>	The product is not subject to any international regulations concerning its transport.
<b>14.2 Road and rail transport (ADR/RID)</b>	Not dangerous.
<b>14.3 Sea transport (IMDG/IMO)</b>	Not dangerous.
<b>14.4 Air transport (ICAQ/IATA)</b>	Not dangerous.

## 15. Regulatory information

<b>15.1 Labeling</b>	According to European directives.
<b>15.2 Hazard symbols</b>	None.
<b>15.3 Risk phrases</b>	None.
<b>15.4 Safety phrases</b>	S22 “Do not inhale dusts” S24/25 “Avoid contact with the eyes and skin”

## 16. Other information

<i>Ingredients</i>	<i>Symbol</i>	<i>R phrases</i>
SILICA GEL (CAS 112926-00-8 CE 231-545-4)	not required	not required

S22 “Do not inhale dusts”  
S24/25 “Avoid contact with the eyes and skin”

Advice to users

The information in this material safety data sheet is based on our current knowledge and on Italian and European Community regulations. The product must not be used for any purposes other than those specified in section 1, in the absence of written instructions on its handling. It is the user's responsibility to take all measures necessary to conform with local and national regulations.

The information in this data sheet complies with Directive CEE 1999/45 (assimilated in Italy by Law No. 65 of 14/03/03) and with Directive CEE 2001/58 (assimilated in Italy by Ministerial Decree 7/9/2002). The set of regulations mentioned is simply intended to help the user comply with his or her obligations during the use of dangerous products.