

# MATERIAL SAFETY DATA SHEET

## ***radiello***<sup>®</sup>: chemiadsorbing cartridge code 166

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## 1. Product and company identification

<b>1.1 Product Information</b>	radiello®: chemisorbent cartridge code 166
<b>1.1.1 Use</b>	Sampling Substrate for Air monitoring determination of Nitrogen Dioxide (NO <sub>2</sub> ) and Sulfur Dioxide (SO <sub>2</sub> )
<b>1.1.2 Trade name</b>	Adsorbing cartridge code 166
<b>1.2 Company identification</b>	Fondazione Salvatore Maugeri
<b>1.2.1 Name of supplier</b>	Fondazione Salvatore Maugeri
<b>Address</b>	Centro di Ricerche Ambientali/Padova Via Svizzera 16, 35127 Padova
<b>Telephone Number</b>	E-mail: fsm@fsm.it Tel. 0498 064 511 - Fax 0498 064 555
<b>1.3 Emergency contact number</b>	
National Toxicology Center	Tel. 0382 24444

## 2. Composition. Information on ingredients

The sampling device is made by a stainless steel micronet electro tapered filled with the adsorbing made by the following substances identified under the rule 2001/59 recognized in Italy with the force of law since 14/06/2002:

<i>Components</i>	<i>%</i>	<i>Symbol</i>	<i>R phrases</i>
Micro porous Polyethylene	>30	not required	not required
Distilled water	>30	not required	not required
TRIETHANOLAMINE (TEA) 98% (CAS 102-71-6 CE 203-049- 8) Sigma - Aldrich cod.T58300	<20	<b>Xi</b>	R 36/37/38

## 3. Health hazard identification

The product is not classified as hazardous according to directive 1999/45 and Law N. 65 of 14/03/03 and Law N. 260 of 28/07/04 (Hazardous Products), because the TRIETHANOLAMINE (TEA) concentration is not over the value of the 20% to be classified R 36/37/38 "irritating for eyes, breathing ways and skin".

Health risk: None

Environment risk: None

Chemical-Physical damage: None

## 4. First aid measures

### 4.1 General indications

In case of or if any symptom is present call a doctor showing this MSDS

Do not administer any substances by mouth to an unconscious person.

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

#### 4.2.1 Inhalation

Under normal uses conditions, Should be not expected effects come from products vapor inhalation. Nevertheless, in case of breathing symptoms (cough, dispnea), remove to fresh air. Put the person in semi-sited position and if not breathing gives the artificial respiration. If breathing is difficult give oxygen.

#### 4.2.2 Contact with the skin

In case of skin contact, flush with copious amounts of soap and water for some minutes. Remove contaminated clothing and shoes. In case of irritation (burning, painful), call a doctor

#### 4.2.3 Contact with the eyes

Under normal work condition eyes contact has not expected. Nevertheless if happened, In case of contact with eye, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with finger. Call a doctor.

#### 4.2.4 Ingestion

Under normal work condition ing estion has not expected. Nevertheless if happened, don't give any drink and rinse amouth with water. Call a doctor.

## 5. Fire fighting measures

In case of fire in a border area (e.g.: Warehouse, where the product is stocked) follow the norm below described:

### 5.1 General indications

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

### 5.2 Entinguishing media

Water spray, carbon dioxide, Appropriate foam, dry chemical powder

- 5.3 Extinguishing media that must not be used** Not known
- 5.4 Exposure risks in the case of fire** Emits toxic fumes under fire conditions (e.g.: CO – NO<sub>x</sub>). See the point 11.2. for symptoms.
- 5.5 Fire fighting equipment** Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

## 6. Accidental release measures

- 6.1 Personal precautions** Is suggested handle the product with safety gloves. Avoid skin and eyes contact.
- 6.2 Environmental precautions** Due to the handled product quantity and safety packaging mode is not recognized the possibility to create environment pollution and damage. Don't spread the product on environment.
- 6.3 Cleaning-up methods**
- 6.3.1 Decontamination** In case of spread, avoid raising dust. Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.
- 6.3.2 Elimination** Eliminate the polluted aqueous solution, under the local safety rules.

## 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 clothing. Avoiding breathing dust. Avoid prolonged or repeated exposure. Don't smoke. Keep out from ignition source.

### 7.2 Storage

- 7.1.1 Technical measures** Take all the safety measure to avoid accidental outdoor product spread in case of breaking.
- 7.1.2 Storage conditions** Keep container closed with the original label or in

appropriate storage container in a fresh, dry ambient.  
Keep away from flame

## 8. Exposure control. Personal protection

<b>8.1 General hygiene measures</b>	Follow the In Force Safety rules and the supplier company recommendation as described on point 7.1. Maintain good ventilation. Wash thoroughly after handling..
<b>8.2 Olfactive perception threshold</b>	Not applicable.
<b>8.3 Professional Exposure limits</b>	Germany. Source: TRGS. Type: OEL 5 mg/m <sup>3</sup> United State. Source: ACGIH Type: TLV-TWA 5 mg/m <sup>3</sup>
<b>8.4 Exposure Bio marker</b>	Not known
<b>8.4 Personal protection measures</b>	
<b>8.5.1 Respiratory protection</b>	Not needed.
<b>8.5.2 Eye protection</b>	Safety Glass
<b>8.5.3 Hand protection</b>	Chemical Safety Gloves.
<b>8.5.4 Skin protection</b>	Adequate protective lab coat.

## 9. Physical and chemical properties

<b>9.1 Physical State</b>	Synthetic Cylinder slightly humid
<b>9.2 Color</b>	Solid White color
<b>9.3 Odor</b>	Not detectable
<b>9.3 pH</b>	Alcaline
<b>9.4 Boiling Point</b>	Not applicable
<b>9.5 Melting Point</b>	Not applicable
<b>9.6 Flash Point</b>	Not flammable
<b>9.7 Flammability</b>	Not flammable
<b>9.8 Auto-ignition</b>	Not flammable

<b>9.9 Autoignition Temp</b>	Not known.
<b>9.10 Combustion properties</b>	Not known.
<b>9.11 Vapor pressure</b>	Not applicable
<b>9.12 Relative density</b>	Not applicable
<b>9.13 Solubility in water</b>	Not applicable
<b>9.14 Solubility in organic solvents</b>	Not applicable
<b>9.15 Partition coefficient n-octanol/water</b>	Not applicable
<b>9.16 Vapor density</b>	Not applicable
<b>9.17 Miscibility</b>	Not applicable
<b>9.18 Evaporation speed</b>	Not applicable
<b>9.19 Conductivity</b>	Not applicable
<b>9.20 Viscosity</b>	Not detectable

## 10. Stability and reactivity

<b>10.1 Conditions to avoid</b>	Stable product, Avoid oxidizing and warming source
<b>10.2 Materials to avoid</b>	Strong oxidizing agents
<b>10.3 Hazardous decomposition products</b>	Product is stable, in case of fire the degradation products. Hazardous. In case of fire the decomposition products are: carbon monoxide, carbon dioxide, nitrogen oxides.

## 11. Toxicological Information

<b>11.1 Toxicological data</b>	The TRIETHANOLAMMINE (TEA) is the only component where has been determined the oral rat $DL_{50}$ that is: 4920 $\mu$ L/kg
<b>11.2 Acute Toxicity</b>	The acute toxicity is due to the Irritating action of the TRIETHANOLAMMINE (TEA)

- 11.2.1 Inhalation** Due to the compound characteristic, it is not a normal exposure path.  
In case of inhalation of fiber fumes can appear breathing way irritation with a variable gravity, cough, dispnea, late pulmonary oedema (24-72 hour after the exposition), air demand, nausea, vomit, unconscious syndrome, convulsion, cardiac problem, increasing level of carboxihemoglobin, metabolic acidosis.
- 11.2.2 Skin contact** Skin contact with TRIETHANOLAMMINE (TEA) show irritative effect.  
In case of fire some developed compound are responsible of the irritative skin effect.
- 11.2.3 Eye Contact** Due to the compound characteristic, it is not a normal exposure path.. TRIETHANOLAMMINE (TEA) eyes contact cause irritating effect, pain, burning, tearing.  
Experimental data: 20mg of eyes contact show serious irritative effect on rabbit. 10mg shown light irritation.  
In case of fire compound developed will be responsible for irritation and eyes disease.
- 11.2.4 Ingestion** Due to the compound characteristic, it is not a normal exposure path Experimental data show that TRIETHANOLAMMINE (TEA) ingestion cause gastric ipermobility and diarrhea..
- 11.3 Chronic toxicity**
- 11.3.1 Inhalation** it is not a normal exposure path.
- 11.3.2 Skin Contact** it is not a normal exposure path.
- 11.3.3 Eye Contact** it is not a normal exposure path.
- 11.3.4 Ingestion** it is not a normal exposure path.
- 11.4 Delayed effects** Significant delayed effects are not expected, though in some cases (characterized by several confounding factors), possible sensitization of skin and respiratory tract, following exposure to TRIETHANOLAMMINE (TEA), has been hypothesized
- 11.5 Corrosiveness. Irritant Potential**
- 11.5.1 Skin** TRIETHANOLAMMINE (TEA) can cause irritation effect.
- 11.5.2 Mucose** TRIETHANOLAMMINE (TEA) can cause irritation effect.
- 11.5.3 Eyes** TRIETHANOLAMMINE (TEA) can cause irritation effect.

<b>11.6 Sensitizing potential</b>	Look on 11.4
<b>11.7 Carcinogenicity</b>	TRIETHANOLAMMINE (TEA) is not classified as carcinogenic product.
<b>11.8 Mutagenicity</b>	No clear mutagenic action from the TRIETHANOLAMMINE (TEA)
<b>11.9 Effects on reproduction</b>	No study are actual done to determine the teratogenic power of TRIETHANOLAMMINE (TEA)
<b>11.10 Teratogenic effect</b>	Only one study shown the possible teratogenic effect on poultry. No data about humans.
<b>11.11 Narcotic effect</b>	None

## 12. Ecological Information

<b>12.1 Mobility</b>	No data reported
<b>12.2 Life time and degradability</b>	No data reported
<b>12.3 Bioaccumulation power</b>	No data reported
<b>12.4 Water toxicity</b>	No data reported
<b>12.5 Observation</b>	Don't spread the product in ambient or part of it.

## 13. Disposal considerations

Contact a licensed professional waste disposal service to dispose of this material. After the use, the product should be dispose as Special Waste. Observe all federal, state, and local environmental regulations.

## 14. Transport information

<b>14.1 General information</b>	No special international rules is requires for the transport of this product.
<b>14.2 Road and rail transport (ADR/RID)</b>	Not dangerous.

**14.3 Sea Transport (IMDG/IMO)** Not dangerous.

**14.4 Air transport (ICAQ/IATA)** Not dangerous.

## 15. Regulatory Information

**15.1 Labeling** Not required

**15.2 Hazard symbols** None

**15.3 Risk phrases** None

**15.4 Caution suggestions** None

## 16. Other Information

<i>Ingredients</i>		<i>Symbol</i>	<i>R phrases</i>
Micro porous Polyethylene	>30	not required	not required
Distilled water	>30	not required	not required
TRIETHANOLAMINE (TEA) 98%(CAS 102-71-6 CE 203-049- 8)			
Sigma - Aldrich cod.T58300	<20	<b>Xi</b>	R 36/37/38

R 36/37/38: "Irritative for eyes, skin and breathing ways

S 26: "In case of contact with eyes flush with copious amounts of water and contact a doctor.

S 36 : "Use protective clothes.

### 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 this product