

MATERIAL SAFETY DATA SHEET

***radiello*[®]: calibration set for VOC
in workplace environments
code 406**

1.	Product and company identification	page	2
2.	Composition. Information on ingredients	page	2
3.	Health hazard identification	page	2
4.	First aid measures	page	3
5.	Fire fighting measures	page	3
6.	Accidental release measures	page	4
7.	Handling and storage	page	4
8.	Exposure control. Personal protection	page	5
9.	Physical and chemical properties	page	5
10.	Stability and reactivity	page	6
11.	Toxicological information	page	6
12.	Ecological information	page	6
13.	Disposal considerations	page	7
14.	Transport information	page	7
15.	Regulatory information	page	7
16.	Other information	page	7



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1. Product and company identification

1.1 Product identification

Radiello[®]: calibration set for VOC in workplace environments code 406

1.1.1 Use

The calibration set is designed for scheduled quality control of the calibration procedure for the analysis of volatile organic compounds (VOC) sampled in workplace environments by the code 130 cartridge.

1.1.2 Trade name

Calibration set for VOC in workplace environments code 406

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: fsm@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 set is composed of twelve code 130 cartridges, that is twelve 5.8 mm diameter stainless steel net cylinders (100 mesh) filled with 530±30 mg activated charcoal (35-50 mesh). Of these cartridges, three are blanks and nine, divided into groups of three, are loaded with VOC to simulate 8 hours exposure to tabulated concentrations of the compounds. VOC loading is performed by injection of precisely known amounts of vaporized standard solutions in CS₂ of the eight compounds (benzene, toluene, ethylbenzene, o-xylene, p-xylene, m-xylene, butanol, 2-ethoxyethylacetate) under nitrogen flow. Kept at 4°C the cartridges are stable for at least for months.

<i>Ingredients</i>	<i>R phrases</i>	<i>Symbol</i>	<i>%</i>
ACTIVATED CHARCOAL (CAS 7440-44-0 CE231-153-3)	not required	not required	530±30 mg
BENZENE (CAS 71-43-2 CE200-753-7)	R45;R11;R48/23/24/25	F; T	<0.01
TOLUENE (CAS 108-88-3 CE203-525-9)	R11;R20	F; Xn	<0.01
ETHYLBENZENE <0,01 (CAS 100-41-4 CE202-849-4)	R11 ;R20	Xn	
M-XYLENE	R10;R20/21;R38	Xn	<0.01

(CAS 108-38-3 CE 203-576-3)

O-XYLENE (CAS 95-47-6 CE 202-422-2)	R10;R20/21;R38	Xn	<0.01
P-XYLENE (CAS 106-42-3 CE 203-396-5)	R10;R20/21;R38	Xn	<0.01
BUTANOL (CAS 71-36-3 CE200-751-6)	R10; R22;R 37/38/40;R41;R67	F;Xi	<0.1
2- ETHOXYETHYLACETATE (CAS 11-15-9 CE203-839-2)	R60;R61 ;R20/21/22	T	<0,1

3. Health hazard identification

The product is not classified as dangerous according to directive 1999/45 and Law N. 65 of 14/03/03 (Hazardous Products) in that the concentrations of benzene, toluene, ethylbenzene, o-xylene, p-xylene, o-xylene, butanol, and 2-ethoxyethylacetate are below 0.1%. The concentrations are therefore below the minimum limit allowed for any impurities of the product, set at 0.1% (Enclosure IX, Law N. 65 of 14 March 2003).

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** 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** 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** Do not give anything to drink. Only rinse the mouth if the

subjects is conscious and consult a doctor.

5. Fire fighting measures

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** Powder for incandescent materials, carbon dioxide, foams.
- 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. The symptoms are reported in point 11.2.
- 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 its type of packaging, accidental damage to the environment does not appear possible. 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 | Wash the hands carefully after 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

- | | |
|--|--|
| 8.1 General hygiene measures | 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. |
| 8.2 Limits of occupational exposure | The limits of occupational exposure have not be defined from the components of the product. |
| 8.3 Personal protection measures | |
| 8.3.1 Respiratory protection | In case of spills, use a filter mask to trap any dust present. |
| 8.3.2 Eye protection | Wear protective glasses resistant to chemical agents. |
| 8.3.3 Hand protection | Wear appropriate protective gloves |
| 8.3.4 Skin protection | Wear work clothes or suitable protective clothing. |

9. Physical and chemical properties

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|---------------------------|--------------------------|
| 9.1 Physical state | Solid granular material. |
| 9.2 Color | Black. |
| 9.3 Odor | Not perceptible. |

9.4	pH	4-7.
9.5	Boiling point	Not applicable.
9.6	Melting point	Not applicable.
9.7	Explosive properties	Not applicable.
9.8	Combustion properties	Not applicable.
9.9	Vapor pressure	Not applicable.
9.10	Apparent density	ca. 1.5-1.8 g/100 mL
9.11	Solubility in water	Not soluble.
9.12	Solubility in organic solvents	Not applicable.
9.13	Partition coefficient	Not applicable.
9.14	Miscibility	Not applicable.
9.15	Evaporation rate	Not applicable.
9.16	Conductivity	Not applicable.
9.17	Viscosity	Not applicable.

10. Stability and reactivity

10.1	Conditions to avoid	Stable product, avoid high temperatures.
10.2	Materials to avoid	Strongly oxidizing agents.
10.3	Hazardous decomposition products	The product is stable. There is no information on products of decomposition.

11. Toxicological information

11.1	Acute toxicity	No toxicity data are available.
11.2	Toxicity data	The product is not expected to be harmful to health. Contact can cause skin and eye irritation. If inhaled, the product can irritate the mucosa and respiratory tract. It can be harmful if ingested.

12. Ecological information

12.1 Mobility	Data not available.
12.2 Persistence and degradability	Data not available.
12.3 Bioaccumulation potential	Data not available.
12.4 Aquatic toxicity	Data not available.
12.5 Remarks	Do not dispose of the product (or part of it) in the environment. The product is insoluble in water. Therefore, if handled correctly, 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.

14. Transport information

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

15. Regulatory information

15.1 Labeling	Not required.
15.2 Hazard symbols	None.
15.3 Risk phrases	None.
15.4 Safety phrases	S22: Do not inhale. S24/25: Avoid contact with the eyes and skin.

16. Other information

<i>Ingredients</i>	<i>Symbol</i>	<i>R phrases</i>
ACTIVATED CHARCOAL	not required	not required S22: Do not inhale S24/25: Avoid contact with the eyes and skin
BENZENE	F;T	R45;R11;R48/23/24/25 S53: Avoid exposure - refer to special instructions prior to use S45: consult a doctor immediately in the case of an accident or feeling unwell (show the doctor this label if possible).
TOLUENE	F , Xn	R11;R20 S2: Keep out of reach of children S16: Keep away from flames and sparks. Do not smoke. S25: Avoid contact with the eyes. S29: Do not dispose of in drains S33: Keep away from electrostatic charges
ETHYLBENZENE	Xn	R11 ;R20 S2; S16; S29 S24/25: Avoid contact with the eyes and skin.
M/ O/ P -XYLENE	Xn	R10;R20/21;R38 S2 ;S25
BUTANOL	F;Xi	R10; R22;R 37/38;R41;R67 S2 S 7/9: Keep in a tightly close recipient in a well ventilated place S13: Keep away from food and drink S26: In the case of contact with the eyes, wash the eyes immediately with copious amounts of water and consult a doctor S37/39: Use appropriate gloves and protect the eyes and face

S46: In the case of ingestion consult a doctor and show the doctor the container or label.

2- ETHOXYETHYLACETATE

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R60;R61 ;R20/21/22

S53 ;S45

R10 “inflammable”

R11 “easily inflammable”

R20 “harmful by inhalation”

R20/21 “harmful by inhalation and contact with skin”

R22 “harmful if ingested”

R37/38 “irritant to the respiratory tract and skin

R38 “irritant to the skin”

R41 “risk of severe eye lesions”

R45 “can cause cancer”

R48/23/24/24 “toxic: danger of serious damage to health in the case of prolonged exposure through inhalation, contact with the skin or by ingestion.”

R67 “the inhalation of vapors can cause drowsiness and dizziness”

R60 “can reduce fertility”

R61 “can damage unborn children”

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 the products.