



calibration solution for H₂S

code RAD171

Code RAD171 relieves you from the task of preparing the sodium sulfide standard solution for the calibration curve used for the determination of H₂S by the cartridge code RAD170 (see page H1).

Since sodium sulfide is deliquescent, its weight is not a primary standard and sodium sulfide solution need titration once prepared. Moreover, titration must be repeated often due to the instability of diluted solution (one hour time is sufficient to decrease sulfide content by 10%).

Code RAD171 is a methylene blue concentrated solution that, once diluted 1:50, provides the same absorbance value at 665 nm of a sodium sulfide solution of with concentration 1.145 µg·ml⁻¹ sulfide ions.

This concentration value has been chosen to obtain the highest absorbance value within the linearity range of the spectrophotometer.

To obtain a complete calibration curve, just dilute the mother solution as shown in the table.

Code RAD171 allows you to prepare as many as 50 calibration curves.

Kept closed at room temperature, code RAD171 solution is stable for at least one year.

Solution	ml of	ml of water	equivalent to µg·ml ⁻¹ of S ⁼
A	2 di codice 171	98	1.145
B	25 di A	25	0.572
C	10 di A	40	0.229
D	5 di A	45	0.115



filtration kit

code RAD174

Code RAD174 filtration kit is composed by 20 single use plastic syringes and 20 single use micropore hydrophilic polypropylene filters with diameter 13 mm and 0.45 µm porosity.

Both filter and syringe are suited to filtration of aqueous solutions with pH in the range of 0 to 12 with commonplace eluents for ion chromatography and reverse phase HPLC.

calibration solutions for aldehydes

code RAD302

Calibration curves for aldehydes are obtained with standard solutions of the corresponding 2,4-dinitrophenylhydrazones (see page C1). Although their synthesis is straightforward, their purification is tricky and time-consuming. Code RAD302 offers a certified and convenient choice: a solution of nine 2,4-dinitrophenylhydrazones in a solvent compatible with HPLC eluents and with concentrations suitable for the preparation of calibration curves in the range usually spanned by *radiello* samples.

Code RAD302 is delivered as 10 ml of acetonitrile solutions of the nine 2,4-dinitrophenylhydrazones formed by the aldehydes listed in the table, contained in a pierceable-septum crimped cap vial. The listed concentration values are indicative, actual ones are certified for each lot.

Kept tightly capped in a dark place at 4 °C, the solution is stable for at least four months.

2,4-DNPH of	µg·ml ⁻¹ as aldehyde
formaldehyde	50
acetaldehyde	50
acrolein	10
propanal	50
butanal	50
isopentanal	50
pentanal	50
hexanal	50
benzaldehyde	50



calibration solutions for BTEX (CS₂ desorption)

code RAD405

Code RAD405 calibration kit has been conceived for the analysis of BTEX sampled in urban environments by the cartridge code RAD130 and chemically desorbed by carbon disulfide (see page D1).

The kit may be used both for routine calibration and for scheduled quality control of the calibration procedure described on page D4.

It is composed of 12 code RAD130 cartridges, three of which are blanks and nine, divided into three groups of three, preloaded with BTEX to simulate 7 days exposures (10,080 minutes) to the concentrations listed in the table. The values shown are indicative, actual ones are certified for each lot.

The mass of each analyte deposited onto the cartridge spans the whole range of concentrations usually found in urban environments, extreme values included.

BTEX loading is performed by injection of precisely known amounts of vaporized standard solutions in CS₂ of the five compounds under nitrogen flow.

Kept at 4 °C, the cartridges are stable for at least four months.

code RAD405	simulated concentrations in µg·m ⁻³ (7 days exposure equivalent)		
	Group 1	Group 2	Group 3
benzene	1	10	50
toluene	2	20	100
ethylbenzene	1	10	50
m-xylene	1	10	50
p-xylene	1	10	50
o-xylene	1	10	50

calibration solutions for VOCs in workplace environments

code RAD406

The code RAD406 kit has been conceived for scheduled quality control of the calibration procedure for the analysis of volatile organic compounds (VOCs) sampled by code RAD130 cartridges in workplace environments (see page D4).

It is composed of 12 code RAD130 cartridges, three of which are blanks and nine, divided into three groups of three, preloaded with VOCs to simulate 8 hours exposures (480 minutes) to the concentrations listed in the table. The values shown are indicative, actual ones are certified for each lot.

The composition of the mixture is simple but it includes compounds with different polarity. The loaded mass is calculated in order to represent exposures to 0.5, 1 and 2 times the TLV value for the mixture.

VOCs loading is performed by injection of precisely known amounts of calibrated mixtures of the eight compounds under nitrogen flow.

Kept at 4 °C, the cartridges are stable for at least four months.

code RAD406	simulated concentrations in mg·m ⁻³ (8 hours exposure equivalent)		
	Group 1	Group 2	Group 3
benzene	0.1	0.2	0.4
toluene	19	38	76
ethylbenzene	12	24	48
m-xylene	12	24	48
p-xylene	12	24	48
o-xylene	12	24	48
butanol	15	30	60
2-etoxyethyl acetate	2.5	5	10



calibration solutions for BTEX (thermal desorption)

code RAD407

Code RAD407 calibration kit has been conceived for the analysis of BTEX sampled in urban environments by the cartridge code RAD145 and thermally desorbed (see VOCs - thermal desorption).

The kit may be used both for routine calibration and for scheduled quality control of the calibration procedure described on page E5. It is composed of 12 code RAD145 cartridges, three of which are blanks and nine, divided into three groups of three, preloaded with BTEX to simulate 7 days exposures (10,080 minutes) to the concentrations listed in the table.

code RAD407	simulated concentrations in $\mu\text{g}\cdot\text{m}^{-3}$ (7 days exposure equivalent)		
	Group 1	Group 2	Group 3
benzene	1	5	25
toluene	2	10	50
ethylbenzene	1	5	25
m-xylene	1	5	25
p-xylene	1	5	25
o-xylene	1	5	25

The values shown are indicative, actual ones are certified for each lot.

BTEX loading is performed by injection of precisely known amounts of vaporized standard solutions in methanol of the five compounds under nitrogen flow. During the analysis the chromatographic peak of methanol will be visible. Kept at 4 °C, the cartridges are stable for at least four months.