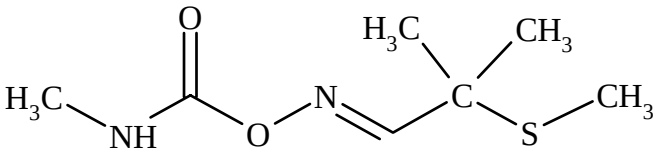
ALDICARB
215



ISO common name	Aldicarb
Chemical name	2-Methyl-2-(methylthio)propionaldehyde *O*-methyl-carbamoyloxime (IUPAC); 2-methyl-2-(methylthio)-propanal *O*-[(methylamino)-carbonyl]oxime (CA; *116-06-3*)
Empirical formula	$C_7H_{14}N_2O_2S$
RMM	190.3
m.p	100 °C
v.p.	6.6 Pa at 20 °C
Solubility	In water: 6 g/l at 20 °C; soluble in most organic solvents; almost insoluble in heptane
Description	White odourless crystals
Stability	Stable in solution except to strong alkali. Decomposes above 100 ºC. Rapidly converted by oxidising agents to the sulfoxide and more slowly to the sulfone.
Formulations	Granules

ALDICARB TECHNICAL

*__215__/TC/M/-

1 Sampling. Take at least 100 g.

2 Identity tests

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3 Aldicarb

OUTLINE OF METHOD The sample is dissolved in dichloromethane and aldicarb is determined by infrared spectroscopy using solvent compensation.

REAGENTS

Aldicarb standard of known purity
Dichloromethane
Calibration solution. Weigh (to the nearest 0.1 mg) 180 ± 10 mg (*s* mg) aldicarb standard into a volumetric flask (100 ml), add dichloromethane (80 ml), shake to dissolve and dilute to volume with dichloromethane.

APPARATUS

Infrared spectrophotometer
Sodium chloride cells matched pair, 0.5 mm pathlength

PROCEDURE

(a) Preparation of sample. Weigh (to the nearest 0.1 mg) sufficient sample to contain 180 ± 10 mg (*w* mg) aldicarb into a volumetric flask (100 ml), add dichloromethane (80 ml), shake to dissolve and dilute to volume with dichloromethane.

(b) Determination. Using the matched 0.5 mm sodium chloride cells scan the sample and calibration solution from 1900 to 1600 cm^{-1} (5.2 to 6.0 µm) against dichloromethane. Calculate the absorbance A of the sample and A' of the standard at 1740 cm^{-1} (5.75 µm) using the absorbance A_0 at 1850 cm^{-1} (5.4 µm) as baseline absorbance (A and A' should both be about 0.45).

(c) Calculation

$$\text{Aldicarb content} = \frac{A \times s \times P}{w \times A'} \text{ g/kg}$$

*AOAC-CIPAC method 1976.

where:

A = absorbance of the sample at 1740 cm^{-1} corrected for the baseline absorbance A_0 at 1850 cm^{-1}

A' = absorbance of the standard at 1740 cm^{-1} corrected for the baseline absorbance A_0 at 1850 cm^{-1}

s = mass of aldicarb in the calibration solution (mg)

w = mass of sample taken (mg)

P = purity of aldicarb standard (g/kg)

ALDICARB GRANULES

[*]**215**/GR/M/-

1 Sampling. Take at least 500 g.

2 Identity tests

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3 Aldicarb

OUTLINE OF METHOD The sample is extracted with dichloromethane and aldicarb is determined by infrared spectroscopy using solvent compensation. A correction is made for absorbance of the binder.

REAGENTS As for aldicarb technical **215**/TC/M/3 together with:
Methanol

APPARATUS As for aldicarb technical **215**/TC/M/3 together with:
Soxhlet extractor with flask (125 ml) or equivalent straight through extractor
Fritted glass Gooch crucible coarse, 30 ml
Filter flask
Cellulose extraction thimbles 25 × 80 mm

PROCEDURE

(a) Preparation of sample. Weigh (to the nearest 0.1 mg) sufficient sample to contain 180 ± 10 mg (w mg) aldicarb into an extraction thimble, cover with a layer of surgical cotton wool, and place the thimble in the extractor. Add two or three boiling stones and dichloromethane (80 ml) to the flask and extract at a rate to give five extractions within 60 min. Allow to cool to room temperature. Transfer the solution quantitatively to a volumetric flask (100 ml) with dichloromethane and dilute to volume with dichloromethane.

[*]AOAC-CIPAC method 1976.

(b) Determination. As for aldicarb technical **215**/TC/M/3*(b)*.

(c) Correction for binder. Pipette 50 ml of the sample solution to a beaker (100 ml) and place on a water bath at room temperature in a hood or fume cupboard. Evaporate the solvent using a gentle stream of clean, dry air. Add methanol (25 ml), stir well and filter through a Gooch crucible. Rinse the beaker and crucible with methanol (25 ml) applying vacuum until all the liquid is in the filter flask. Place the crucible and contents in the original beaker, add dichloromethane (20 ml) to the crucible, and swirl to dissolve the binder, letting the solvent drip into the beaker. Repeat with additional dichloromethane (20 ml). Quantitatively transfer the solvent to a volumetric flask (50 ml) and dilute to volume with dichloromethane. Scan the solution as for section *(b)* and determine the absorbance (A_B). Subtract the absorbance of the binder (A_B, should be < 0.005) from that of the sample solution (A).

(d) Calculation

$$\text{Aldicarb content} = \frac{(A - A_B) \times s \times P}{w \times A'} \text{ g/kg}$$

where:

A = absorbance of the sample at 1740 cm^{-1} corrected for the baseline absorbance A_0 at 1850 cm^{-1}

A' = absorbance of the standard at 1740 cm^{-1} corrected for the baseline absorbance A_0 at 1850 cm^{-1}

A_B = absorbance of the binder at 1740 cm^{-1} corrected for the baseline absorbance A_0 at 1850 cm^{-1}

s = mass of aldicarb in the calibration solution (mg)

w = mass of sample taken (mg)

P = purity of aldicarb standard (g/kg)