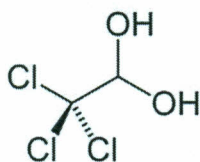


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## CHLORAL HYDRATE



$C_2H_3Cl_3O_2$

M=165.4

### Action and use

Hypnotic

### DEFINITION

2,2,2-Trichloroethane-1,1-diol.

### Content

98.5 per cent to 101.0 per cent.

### CHARACTERS

#### Appearance

Colourless, transparent crystals.

#### Solubility

Very soluble in water, freely soluble in ethanol (96 per cent).

### IDENTIFICATION

A. To 10 ml of solution S add 2 ml of *dilute sodium hydroxide solution R*. The mixture becomes cloudy and, when heated, gives off an odour of chloroform.

B. To 1 ml of solution S add 2 ml of *sodium sulphide solution R*. A yellow colour develops which quickly becomes reddish-brown. On standing for a short time, a red precipitate may be formed.

### TESTS

#### Solution S

Dissolve 3.0 g in *carbon dioxide-free water R* and dilute to 30 ml with the same solvent.

#### Appearance of solution

Solution S is clear and colourless.

#### pH

3.5 to 5.5 for solution S.

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#### **Chloral alcoholate**

Warm 1.0 g with 10 ml of *dilute sodium hydroxide solution R*, filter the supernatant solution and add 0.05 M iodine dropwise until a yellow colour is obtained. Allow to stand for 1 h. No precipitate is formed.

#### **Chlorides**

Maximum 100 ppm.

Dilute 5 ml of solution S to 15 ml with *water R*.

#### **Heavy metals**

Maximum 20 ppm.

10 ml of solution S diluted to 20 ml with *water R* complies with test A. Prepare the reference solution using *lead standard solution (1 ppm Pb) R*.

#### **Non-volatile residue**

Maximum 0.1 per cent.

Evaporate 2.000 g on a water-bath. The residue weighs a maximum of 2 mg.

#### **ASSAY**

Dissolve 4.000 g in 10 ml of *water R* and add 40.0 ml of 1 M *sodium hydroxide*. Allow to stand for exactly 2 min and titrate with 0.5 M *sulphuric acid*, using 0.1 ml of *phenolphthalein solution R* as indicator. Titrate the neutralised solution with 0.1 M *silver nitrate*, using 0.2 ml of *potassium chromate solution R* as indicator. Calculate the number of millilitres of 1 M *sodium hydroxide* used by deducting from the volume of 1 M *sodium hydroxide*, added at the beginning of the titration, the volume of 0.5 M *sulphuric acid* used in the 1st titration and two fifteenths of the volume of 0.1 M *silver nitrate* used in the 2nd titration.

1 ml of 1 M *sodium hydroxide* is equivalent to 0.1654 g of  $C_2H_3Cl_3O_2$ .

#### **STORAGE**

In an airtight container .