

CHLORINE

Prepared at the 28th JECFA (1984), published in FNP 31/2 (1984) and in FNP 52 (1992) Metals and arsenic specifications revised at the 63rd JECFA (2004). A treatment level of 2.5g Chlorine /kg flour was established at the 29th JECFA (1985)

SYNONYMS

INS No. 925

DEFINITION

Chemical names

Chlorine

C.A.S. number

7782-50-5

Chemical formula

Cl₂

Formula weight

70.91

Assay

The content of the vapourized liquid shall be not less than 99.5% of Cl₂ (v/v)

DESCRIPTION

Liquid chlorine is a clear yellow liquid which on vapourizing yields a greenish yellow gas. It is gaseous at atmospheric temperatures and pressures but normally supplied under pressure in containers in which it is present in both liquid and gaseous phases. Such containers should meet appropriate requirements for the transportation and storage of hazardous gases. Caution: Chlorine gas is a respiratory irritant. Large amounts cause coughing, laboured breathing and irritation of the eyes. In extreme cases the difficulty in breathing may cause death due to suffocation. Liquid chlorine causes skin and eye burns on contact. Safety precautions to be observed in handling the material are available, e.g., in the Chlorine Manual obtainable from the Chlorine Institute, 342 Madison Avenue, New York, N.Y. 10017, USA.

FUNCTIONAL USES Flour treatment agent, bleaching agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)

Very soluble in water

Test for chlorine

Cautiously pass a few ml of chlorine gas through 10 ml of sodium hydroxide TS that has been previously chilled in an ice bath. The resulting solution gives positive tests for *Chloride* and it darkens starch iodide paper.

PURITY

Moisture

Not more than 150 mg/kg
Determine by ASTM method E 410-70 "Moisture and Residue in Liquid Chlorine"

Residue on evaporation Not more than 150 mg/kg
Determine by ASTM method E 410-70 "Moisture and Residue in Liquid Chlorine"

Mercury (Vol. 4) Not more than 1 mg/kg
Dissolve the residue obtained in the Test for Residue on evaporation in 2.5 ml of freshly prepared aqua regia and dilute with water to a volume in ml equivalent to the weight in g of the initial chlorine sample, so that 1 ml of the final dilution is equivalent to 1 g of chlorine.

Transfer 2.0 ml of the Sample Solution into a 50 ml beaker, add 10 ml of water, 1 ml of dilute sulfuric acid (1 in 5), and 1 ml of potassium permanganate solution (1 in 25), cover with a watch glass, boil for a few sec, and cool. Use the resulting solution as the Sample Preparation for the Limit Test.

Lead (Vol. 4) Not more than 2 mg/kg
Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, "Instrumental Methods."

METHOD OF ASSAY Determine by ASTM Method E 412-70, "Assay of Liquid Chlorine (Zinc Amalgam Method)".