

**Identification** To 10 mL of a solution of Powdered Acacia (1 in 50) add 0.2 mL of dilute lead subacetate TS: a white, flocculent precipitate is produced.

**Purity (1)** Insoluble residue—To 5.0 g of Powdered Acacia add 100 mL of water and 10 mL of dilute hydrochloric acid, and dissolve by gentle boiling for 15 minutes with swirling. Filter the warm mixture through a tared glass filter (G3), wash the residue thoroughly with hot water, and dry at 105°C for 5 hours: the mass of the residue does not exceed 10.0 mg.

(2) Tannin-bearing gums—To 10 mL of a solution of Powdered Acacia (1 in 50) add 3 drops of iron (III) chloride TS: no dark green color is produced.

(3) Starch or dextrin—Boil 0.20 g of Powdered Acacia in 10 mL of water. After cooling, add 1 drop of iodine TS: no dark blue or red-purple color appears.

**Loss on drying** Not more than 15.0% (6 hours).

**Total ash** Not more than 4.0%.

**Acid-insoluble ash** Not more than 0.5%.

**Containers and storage** Containers—Tight containers.

## Acetic Acid

酢酸

Acetic Acid contains not less than 30.0 w/v% and not more than 32.0 w/v% of  $C_2H_4O_2$ : 60.05.

**Description** Acetic Acid is a clear, colorless liquid. It has a pungent, characteristic odor and an acid taste.

It is miscible with water, with ethanol (95) and with glycerin.

Specific gravity  $d_{20}^{20}$ : about 1.04

**Identification** Acetic Acid changes blue litmus paper to red, and responds to the Qualitative Tests for acetate.

**Purity (1)** Chloride—To 20 mL of Acetic Acid add 40 mL of water, and use this solution as the sample solution. To 10 mL of the sample solution add 5 drops of silver nitrate TS: no opalescence is produced.

(2) Sulfate—To 10 mL of the sample solution obtained in (1) add 1 mL of barium chloride TS: no turbidity is produced.

(3) Heavy metals—Evaporate 10 mL of Acetic Acid on a water bath to dryness, and to the residue add 2 mL of dilute acetic acid and water to make 50 mL. Perform the test with this solution as the test solution. Prepare the control solution with 3.0 mL of Standard Lead Solution by adding 2 mL of dilute acetic acid and water to make 50 mL (not more than 3 ppm).

(4) Potassium permanganate-reducing substances—To 20 mL of the sample solution obtained in (1) add 0.02 mol/L potassium permanganate VS: the red color does not disappear within 30 minutes.

(5) Non-volatile residue—Evaporate 30 mL of Acetic Acid on a water bath to dryness, and dry at 105°C for 1 hour: the mass of the residue is not more than 1.0 mg.

**Assay** Measure exactly 5 mL of Acetic Acid, add 30 mL of water, and titrate with 1 mol/L sodium hydroxide VS (indicator: 2 drops of phenolphthalein TS).

Each mL of 1 mol/L sodium hydroxide VS  
= 60.05 mg of  $C_2H_4O_2$

**Containers and storage** Containers—Tight containers.

## Glacial Acetic Acid

氷酢酸

$H_3C-CO_2H$

$C_2H_4O_2$ : 60.05

Acetic acid [64-19-7]

Glacial Acetic Acid contains not less than 99.0% of  $C_2H_4O_2$ .

**Description** Glacial Acetic Acid is a clear, colorless, volatile liquid, or colorless or white, crystalline masses. It has a pungent, characteristic odor.

It is miscible with water, with ethanol (95) and with diethyl ether.

Boiling point: about 118°C

Specific gravity  $d_{20}^{20}$ : about 1.049

**Identification** A solution of Glacial Acetic Acid (1 in 3) changes blue litmus paper to red, and responds to the Qualitative Tests for acetate.

**Freezing point** Not below 14.5°C.

**Purity (1)** Chloride—To 10 mL of Glacial Acetic Acid add water to make 100 mL, and use this solution as the sample solution. To 10 mL of the sample solution add 5 drops of silver nitrate TS: no opalescence is produced.

(2) Sulfate—To 10 mL of the sample solution obtained in (1) add 1 mL of barium chloride TS: no turbidity is produced.

(3) Heavy metals—Evaporate 2.0 mL of Glacial Acetic Acid on a water bath to dryness. Dissolve the residue in 2 mL of dilute acetic acid and water to make 50 mL, and perform the test using this solution as the test solution. Prepare the control solution with 2.0 mL of Standard Lead Solution by adding 2.0 mL of dilute acetic acid and water to make 50 mL (not more than 10 ppm).

(4) Potassium permanganate-reducing substances—To 20 mL of the sample solution obtained in (1) add 0.10 mL of 0.1 mol/L potassium permanganate VS: the red color does not disappear within 30 minutes.

(5) Non-volatile residue—Evaporate 10 mL of Glacial Acetic Acid on a water bath to dryness, and dry at 105°C for 1 hour: the mass of the residue is not more than 1.0 mg.

**Assay** Place 10 mL of water in a glass-stoppered flask, and weigh accurately. Add about 1.5 g of Glacial Acetic Acid, weigh accurately again, then add 30 mL of water, and titrate with 1 mol/L sodium hydroxide VS (indicator: 2 drops of phenolphthalein TS).

Each mL of 1 mol/L sodium hydroxide VS  
= 60.05 mg of C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

**Containers and storage** Containers—Tight containers.

## Achyranthes Root

### *Achyranthis Radix*

ゴシツ

Achyranthes Root is the root of *Achyranthes fauriei* Leveillé et Vaniot or *Achyranthes bidentata* Blume (*Amaranthaceae*).

**Description** Main root or main root with some lateral roots, with or without short remains of rhizome at the crown; main root, long cylindrical and sometimes somewhat tortuous, 15–90 cm in length, 0.3–0.7 cm in diameter; externally grayish yellow to yellow-brown, with numerous longitudinal wrinkles, and with scattering scars of lateral roots. Fractured surface is flat; grayish white to light brown on the circumference, and with yellowish white xylem in the center. Hard and brittle, or flexible. Odor, slight; taste, slightly sweet, and mucilaginous.

Under a microscope, a transverse section reveals a rather distinct cambium separating the cortex from the xylem; small protoxylem located at the center of the xylem, and surrounded by numerous vascular bundles arranged on several concentric circles; parenchyma cells containing sand crystals of calcium oxalate; starch grains absent.

**Identification** Shake vigorously 0.5 g of pulverized Achyranthes Root with 10 mL of water: a lasting fine foam is produced.

**Purity** (1) Stem—The amount of stems contained in Achyranthes Root does not exceed 5.0%.

(2) Foreign matter—The amount of foreign matter other than stems contained in Achyranthes Root does not exceed 1.0%.

**Loss on drying** Not more than 17.0% (6 hours).

**Total ash** Not more than 10.0%.

**Acid-insoluble ash** Not more than 1.5%.

## Acrinol and Zinc Oxide Oil

アクリノール・チンク油

### Method of preparation

|                               |       |
|-------------------------------|-------|
| Acrinol, very finely powdered | 10 g  |
| Zinc Oxide Oil                | 990 g |
| To make 1000 g                |       |

Prepare by mixing the above ingredients.

**Description** Acrinol and Zinc Oxide Oil is a yellowish white, slimy substance. Separation of a part of its ingredients occurs on prolonged standing.

**Identification** (1) Shake well 1 g of Acrinol and Zinc Oxide Oil with 10 mL of diethyl ether, 2 mL of acetic acid (100) and 10 mL of water, and separate the water layer. Shake the layer with 5 mL of hydrochloric acid and 2 to 3 drops of sodium nitrite TS, and allow to stand: a dark red color is produced (acrinol).

(2) Place 1 g of Acrinol and Zinc Oxide Oil in a crucible, melt by warming, heat, gradually raising the temperature until the mass is thoroughly charred, and then ignite strongly: a yellow color is produced, and disappears on cooling. To the residue add 10 mL of water and 5 mL of dilute hydrochloric acid, filter after thorough shaking, and to the filtrate add 2 to 3 drops of potassium hexacyanoferrate (II) TS: a white precipitate is formed (zinc oxide).

(3) Shake well 0.2 g of Acrinol and Zinc Oxide Oil with 20 mL of ethanol (95) and 1 mL of acetic acid (100), centrifuge, filter, and use the filtrate as the sample solution. Separately, dissolve 5 mg of acrinol in 50 mL of ethanol (95) and 2.5 mL of acetic acid (100), and use this solution as the standard solution. Perform the test with these solutions as directed under the Thin-layer Chromatography. Spot 5  $\mu$ L each of the sample solution and the standard solution on a plate of silica gel for thin-layer chromatography. Develop the plate with a mixture of 2-propanol and acetic acid (100) (9:1) to a distance of about 10 cm, and air-dry the plate. Examine under ultraviolet light (main wavelength: 365 nm): the spots from the sample solution and the standard solution exhibit a blue fluorescence and show the same R<sub>f</sub> value.

**Containers and storage** Containers—Tight containers.

Storage—Light-resistant.

## Compound Acrinol and Zinc Oxide Oil

複方アクリノール・チンク油

### Method of preparation

|                                      |       |
|--------------------------------------|-------|
| Acrinol, very finely powdered        | 10 g  |
| Zinc Oxide Oil                       | 650 g |
| Ethyl Aminobenzoate, finely powdered | 50 g  |
| White Beeswax                        | 20 g  |
| Hydrophilic Petrolatum               | 270 g |

To make 1000 g

Prepare by mixing the above ingredients.

**Description** Compound Acrinol and Zinc Oxide Oil is light yellow to yellow in color.

**Identification** (1) Shake well 1 g of Compound Acrinol and Zinc Oxide Oil with 10 mL of diethyl ether, 2 mL of acetic acid (100) and 10 mL of water, and separate the water layer. Shake the layer with 5 mL of hydrochloric acid and 2 to 3 drops of sodium nitrite TS, and allow to stand: a dark red color is produced (acrinol).

(2) Place 1 g of Compound Acrinol and Zinc Oxide Oil in a crucible, melt by warming, heat, gradually raising the temperature until the mass is thoroughly charred, and then ignite strongly: a yellow color is produced, and disappears on cooling. To the residue add 10 mL of water and 5 mL of di-