

# MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION

## GENERAL PHARMACOPOEIA MONOGRAPH

---

**Transparency and degree of turbidity  
of liquids**

**GPM.1.2.1.0007.15**

Replaces the State Pharmacopoeia of the  
Russian Federation XII, Part 1 Monograph, GPM 42-0051-07

---

Transparency and degree of turbidity of liquids are determined by comparing the tested liquid with the solvent or reference standards using visual examination or an instrumental method.

Visual examination is carried out using the same test tubes equipped with a ground-in stopper and made of transparent, colourless and neutral glass, with an internal diameter of approximately 15 mm. Equal volumes of the reference standard and the tested liquid (5 mL or 10 mL) are taken for this comparison. Illumination for this test should be provided with a 40 watt matted electric lamp placed over the sample, and the solutions should be examined perpendicularly to the vertical axis of the test tubes, against a black background, in 5 minutes after the reference standard is prepared.

A tested liquid is considered transparent if its transparency is not different from that of water or the solvent used for the preparation of the tested liquid, or when its opalescence (turbidity) does not exceed the opalescence (turbidity) of Reference Standard I examined under the conditions described above.

Appropriate reference standards include suspensions of hydrazine sulphate and hexamethylenetetramine.

***Preparation of the hydrazine sulphate solution.*** Transfer 0.50 g of hydrazine sulphate into a 50 mL volumetric flask, dissolve in 40 mL of water, bring the volume

of the solution to the mark with water, and stir. This solution should be left to stand for 4 to 6 hours.

**Preparation of the hexamethylenetetramine solution.** Dissolve 3.00 g of hexamethylenetetramine in 30.0 mL of water.

**Preparation of the stock standard.** Add 25.0 mL of the hexamethylenetetramine solution to 25.0 mL of the hydrazine sulphate solution, stir, and leave to stand for 24 hours.

The stock standard remains stable for 2 months if stored in stoppered glassware free from surface defects (the suspension should not adhere to the glass).

**Preparation of the main standard.** Transfer 15.0 mL of the stock standard into a 1 L volumetric flask, bring the volume of the solution to the mark with water, and stir.

The shelf-life of the working standard is 24 hours.

**Preparation of the reference standards.** Transfer the measured amount of the main standard (specified in the following table) into a 100 mL volumetric flask, bring the volume of the solution to the mark with water, and stir.

Table 1 - Composition of the reference standards

	Reference standards			
	I	II	III	IV
Working standard, mL	5.0	10.0	30.0	50.0
Water, mL	95.0	90.0	70.0	50.0

**Note.** Prior to use, the stock, main, and reference standards should be stirred and shaken for 3 minutes.

Reference standards I, II, III, and IV should be used while they are fresh.

Transparency and degree of turbidity assessments for liquids may be performed with spectrophotometers or specially designed instruments, such as turbidimeters, nephelometers, or equivalent devices, if this is envisaged by the Pharmacopoeia Monograph. In this case, the Pharmacopoeia Monograph should specify the necessary test conditions.