

APPARATUS FOR THE LIMIT TEST FOR ARSENIC

Classic Gutzeit apparatus with plane-ground joints and metal clamp

Article No. 2421A · Visual limit test for arsenic by the Gutzeit method



HLL Gutzeit apparatus 2421A

PRODUCT AND APPLICATION

The HLL apparatus for the limit test for arsenic by the Gutzeit method, Article No. 2421A, is a glass apparatus for visually determining whether the arsenic content of a sample exceeds the limit specified in the applicable test procedure. The apparatus is intended for pharmaceutical and chemical-analytical laboratories.

OPERATING PRINCIPLE

During the test, arsine is generated from the prepared sample. The gas passes through the gas delivery tube and the section containing lead(II) acetate material. It then reacts with mercury(II) bromide paper. The resulting stain is compared with a reference prepared at the same time.

DESIGN

The apparatus has two plane-ground glass surfaces. The glass components are held together by a metal clamp. The reagent paper used for the test is positioned between the plane-ground joints.

LITERATURE AND PROCEDURAL REFERENCES

The design of the apparatus is based on the classic Gutzeit apparatus for the limit test for arsenic described in the British Pharmacopoeia 2012, Appendix VII, "Limit Test for Arsenic". The test principle using lead(II) acetate material and mercury(II) bromide paper is also described in the WHO International Pharmacopoeia, General Method 2.2.5 "Limit test for arsenic".

METHOD	FLASK	DESIGN	ARTICLE NO.
Limit test for arsenic Gutzeit method	100 mL NS 29/32	Plane-ground joints Metal clamp	2421A Glass set

CONSTRUCTION, TECHNICAL DATA AND PROCEDURE



CONSTRUCTION AND COMPONENTS

1. Reaction flask

100 mL conical flask for holding the prepared reaction mixture; NS 29/32 joint.

2. Gas delivery tube

Conveys the gas generated in the flask and holds the specified lead(II) acetate material.

3. Plane-ground joint

The reagent paper is positioned between the plane-ground sealing surfaces.

4. Metal clamp

Holds the two plane-ground glass components together during the test.

PRINCIPLE OF THE LIMIT TEST

1. Prepare the sample in accordance with the applicable test procedure.
2. Prepare the reaction mixture in the 100 mL conical flask.
3. Generate arsine under the specified conditions.
4. Pass the gas through the section containing lead(II) acetate material.
5. Compare the stain on the mercury(II) bromide paper with the reference.

SCOPE OF SUPPLY

Glass set comprising a 100 mL conical flask, gas delivery tube, short upper glass tube and metal clamp.

APPLICATION NOTE

This brochure describes the operating principle only. The complete test procedure is authoritative for practical performance of the test.

TECHNICAL DATA

Feature	Specification
Product designation	Apparatus for the limit test for arsenic by the Gutzeit method
Article No.	2421A
Application	Visual limit test for arsenic
Method	Gutzeit method
Flask volume	100 mL
Flask joint	NS 29/32
Connection	Plane-ground joints with metal clamp
Material	Clean Save laboratory glass DIN ISO 3585
Supply form	Glass set

SAFETY AND APPLICATION INFORMATION

Highly toxic arsine is generated during the test. Lead- and mercury-containing reagents may also be used. The test may only be performed by qualified personnel under suitable laboratory and safety conditions. The complete test procedure, the safety data sheets and the applicable workplace rules for hazardous substances, occupational safety and disposal must be observed.