

Set of glassware for laboratory work in chemistry

LABOTRIX GLASSWARE C2

PRODUCT PASSPORT

Kyiv

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1. Basic product information

- 1.1. Product name — A set of utensils for chemistry laboratory work.
- 1.2. Trademark — Labotrix.
- 1.3. Model — Glassware C2; full trade name — LABOTRIX GLASSWARE C2.
- 1.4. Manufacturer — Labotrix Group Limited, China.
- 1.5. Intended use: A set of laboratory glassware and equipment for practical and laboratory work in chemistry in educational institutions. The set is intended for studying basic chemical phenomena, properties of substances, reactions and processes in accordance with the school chemistry curriculum. It is used by students under the guidance of a teacher during experiments in organic and inorganic chemistry, in particular work with acids, bases, salts and other reagents.
- 1.6. Design features: The set combines a variety of glass laboratory glassware made of heat-resistant and chemically resistant glass, metal and plastic auxiliary equipment, electronic scales for weighing reagents, as well as tools for safely conducting experiments and filtering.
- 1.7. Digital learning support: The product includes access to an online teaching support course hosted in a learning management system (LMS) and designed for 70 academic hours of classes. The course is designed to meet the current curricula of secondary education institutions in Ukraine. The materials are grouped into research modules in the disciplines of physics, biology, chemistry, STEM, and each topic contains a lesson plan, a list of necessary supplies, an experiment scenario, step-by-step instructions for laboratory work with an explanation of the expected result, a video demonstration of work methods, interactive exercises and tasks for independent study, suitable for both individual and group work. All modules are designed for this equipment and tested on it, so the course works in a direct chain of "equipment → methodology → learning results". The course has an assistant built into it based on a language model with a search through the course knowledge base (Retrieval-Augmented Generation): based on the topic of the lesson, it selects relevant experiments, methodically describes the sequence of conducting the research, analyzes typical student errors and gives personal advice on how to get rid of them, changes the level of complexity to prepare for a specific class, and helps to write a research report and organize the conclusions. The assistant's knowledge base is localized and aligned with the Ukrainian curriculum. The license for the course and accompanying software is valid for 12 months from the date of transfer of access; the content, interface, and assistant answers are provided exclusively in Ukrainian. Working with the course develops attention, logical and imaginative thinking, and creative abilities, and joint research tasks cultivate cooperation skills: students work on the material individually or in groups, gaining learning independence and experience of interaction.

2. Technical specifications

- Brand — Labotrix
- Model — Glassware C2
- The article is LTX-GLASSWARE-C2
- Product type — set of laboratory glassware for chemistry experiments
- Number of items in the set (pieces) — 45
- Material of the glassware — heat-resistant glass, chemically resistant glass
- Measuring cylinder with spout, volume (ml) — 50
- Tall laboratory glass beakers, volume (ml) — 50, 100
- Low laboratory glass beakers, volume (ml) — 100
- Flat-bottomed heat-resistant flasks, volume (ml) — 50
- Graduated conical flasks, volume (ml) — 250
- Conical flasks with ground glass, volume (ml) — 50, 100
- Test tubes with flared edges, dimensions (mm) — d16 × h50
- Vials with stopper and cap, volume (ml) — 50, 100
- Heat-resistant funnel, dimensions (mm) — d60 × h110
- Glass stirring rods, length (mm) — 200
- Pasteur pipettes, volume (ml) — 3
- Test tube stand, number of holes (piece) — 10, hole diameter (mm) — 18
- Universal spirit burner with tripod — 1 pcs
- Safety goggles and gloves — included in the set
- Filter paper, diameter (mm) — 90
- Digital learning support — online course in a learning management system (LMS)
- Course volume (academic hour) — 70
- Course subjects — physics, biology, chemistry, STEM
- Composition of the materials — research modules, experiment scenarios, step-by-step laboratory work instructions, video demonstrations, interactive exercises and tasks
- Compatibility of the materials with the equipment — full, along the chain "equipment → methodology → learning outcomes"
- Language-model-based assistant — built into the course, with retrieval over a localized knowledge base (Retrieval-Augmented Generation)
- Validity period of the license for the course and the software (month) — 12
- Language of the course, of the interface and of the answers of the assistant — Ukrainian
- Language of marking and operating documentation — Ukrainian
- Product marking — trademark, model and a space for the inventory number
- Packaging — a case with each item fixed in a separate slot, a storage box
- Documentation supplied — product passport with warranty card and operating manual
- Method of storing the kit: in a box at the student's workplace or in the laboratory room

- Surface care - metal elements and porcelain dishes can be wiped with a dry or slightly damp cloth
- User requirements - the student works with the kit only under the supervision of a chemistry teacher or laboratory assistant
- Service life (year) — 5
- Warranty period (month) — 12

3. Equipment

- Laboratory chemistry stand — 1 pcs
- Device for producing and collecting gases — 1 pcs
- Measuring cylinder with spout and plastic base, glass, 50 ml — 1 pc.
- Tall laboratory beaker with scale and drain spout, heat-resistant glass, 50 ml — 3 pcs.
- Tall laboratory beaker with scale and drain spout, heat-resistant glass, 100 ml — 1 pc.
- Low laboratory glass with scale and drain spout, heat-resistant glass, 100 ml — 1 pc.
- Flat-bottomed heat-resistant flask, glass, 50 ml — 1 pc.
- Graduated conical flask, chemically resistant glass, 250 ml — 1 pcs
- Conical flask with ground glass, heat-resistant glass, 50 ml — 1 pc.
- Conical flask with ground glass, heat-resistant glass, 100 ml — 1 pc.
- Test tube with flared edges, glass, d16 × h50 mm — 10 pcs.
- Bottle with stopper and lid, glass, 50 ml — 8 pcs.
- Bottle with stopper and lid, glass, 100 ml — 2 pcs.
- Heat-resistant funnel, glass, d60 × h110 mm — 1 pcs
- Stirring stick, glass, 200 mm — 5 pcs.
- Spot plate with wells, porcelain — 1 pcs
- Evaporating dish, porcelain, 50 ml — 1 pcs
- Combustion spoon, metal — 1 pcs
- Spatula spoon, metal, 150 mm — 1 pcs
- Pasteur pipette, polymer, 3 ml — 5 pcs.
- Medical tweezers, metal — 1 pcs
- Test tube holder, metal — 1 pcs
- Test tube stand, plastic, 10 holes, d18 mm — 1 pc.
- Connecting tube, polymer — 1 pc.
- Gas outlet tube with stopper, glass, 110 mm — 2 pcs
- Rubber stopper, 16 mm (14/20 mm) — 5 pcs
- Universal spirit burner with tripod — 1 pcs
- Dry fuel in tablets — 8 pcs./pack.
- Brass diffusion mesh — 1 pcs
- Wooden splints — 10 pcs
- Washing jar, polypropylene, 250 ml — 1 pc.
- Brush for laboratory glassware, d13 mm — 1 pcs

- Brush for laboratory glassware, d20 mm — 1 pcs
- Safety glasses, plastic — 2 pcs.
- Protective gloves, textured latex — 3 pair
- Rubberized apron — 1 pcs
- Cotton medical gown — 2 pcs.
- Filter paper, d90 mm — 100 pcs/pack
- Laboratory tray, plastic — 1 pcs
- Stickers with the formulas of substances — included in the set
- Stickers with warning signs — included in the set
- Teaching guide for the teacher and the student — 1 pcs
- Periodic table of chemical elements (Mendeleev) together with the solubility table of substances, A5 format, — 1 pc.
- Electronic scales, up to 200 g (0.1 g) — 1 pc.
- Foam insert — 1 pcs
- Storage box, plastic — 1 pc.
- Product Passport and Warranty Card — 1 pcs
- Right of access to the online course with a language-model-based assistant (license) — 1 pcs

The set is complete with utensils and supplies needed to perform chemistry laboratory work for the school curriculum. Reagents for experiments are purchased separately.

4. Safety measures

4.1. General requirements

- Read this safety data sheet before first use. Keep records in the safety log and keep the documents with the kit.
- The set is operated by a chemistry teacher or laboratory assistant who has been instructed in occupational safety when working with chemicals and heating equipment.
- Students work with the kit exclusively under the supervision of a teacher in a laboratory or classroom equipped with fume hoods or in a well-ventilated room.
- Check the unpacked set for mechanical damage and the integrity of the dishes. Do not use dishes with cracks or chips.
- Keep your work area tidy and clean. Designate a special place to store the kit away from shocks and moisture.

4.2. Working with glass

- All participants in the experiment must wear safety glasses when working with glassware and when heating.
- The dishes must be washed and dried before starting work. Wet glass is less resistant to impact.
- When carrying dishes, carry them carefully in your hands or in special baskets, avoiding dropping them. Clean up broken glass immediately, avoiding cuts.

- Do not apply excessive force when connecting glass parts and pieces - they may crack, especially during temperature changes.
- After use, allow the glassware to cool to room temperature before rinsing with cold water.

4.3. Working with hot substances and flames

- Never leave dishes unattended while heating them on a spirit stove.
- Use a special test tube holder or metal tongs when working with hot dishes.
- Only carry hot dishes on a metal tray or a special heat-resistant surface.
- Do not lean over the cookware while heating to avoid splashes of hot liquid in your face.
- Extinguish alcohol with a lid or a special fire extinguisher; never use water for this.

4.4. Working with chemical reagents

- Use protective gloves when working with aggressive substances and corrosive materials.
- Never taste or smell substances directly; direct the smell to your nose by gently waving your hand over the container.
- In case of contact with skin or eyes, immediately flush the affected area with plenty of water for several minutes and seek medical attention.
- Store reagents in their original, clearly labeled containers; never transfer to inappropriate containers.

4.5. It is strictly forbidden

- Leaving a lit spirit burner unattended or next to flammable materials.
- Heat dishes with a tight-fitting lid that prevents gases from escaping.
- Disassemble or modify the design of equipment without the teacher's permission.
- Eat food or drink in the room where the experiments are being conducted.

5. Preparation for work

- 5.1. Unpack the kit and place all components on a clean, flat surface on the laboratory bench. Check for completeness according to Section 3.
- 5.2. When washing new dishes, use warm water and detergent. Rinse and dry each item thoroughly.
- 5.3. Use only the necessary equipment from the kit for each work; return it to its place immediately after completing the experiment.
- 5.4. Before heating, make sure that the cookware is dry and clean. There should be no foreign objects on the bottom of the cookware.
- 5.5. Place the alcohol burner on a flat, fireproof surface; make sure there are no flammable materials nearby.
- 5.6. Check the serviceability of all devices before work; do not use damaged equipment.

6. Procedure

6.1. General sequence of the experiment

- Read the job description and materials list before starting the experiment.
- Prepare all necessary reagents by measuring them according to the instructions.
- Arrange utensils and tools in a convenient order for working, leaving space for recording observations.
- Follow the steps sequentially as described in the kit's instruction manual.

6.2. Measurement of substances

- Measure liquids in a graduated cylinder at eye level, identifying the lower edge of the meniscus.
- Measure loose ingredients using a spatula and spoon, without overfilling the container.
- Weigh solids on the supplied electronic scales installed on a stable horizontal surface.
- When collecting gases, use a special device for obtaining and collecting gases.

6.3. Heating dishes

- Light the alcohol lamp with matches or a lighter, holding them near the wick.
- Place the cookware on the rack so that the fire covers the lower third of the cookware.
- Place a glass rod inside the dish for even heating and heat distribution.

6.4. Filtration of solutions

- Fold the filter paper into a cone and insert it into the funnel.
- Slowly pour the mixture through the filter, allowing it to drain into a receiving container.
- Wash the remaining filtrate with distilled water to completely remove the solution.

6.5. Completion of work

- Record all observations and results in a work journal.
- Extinguish the alcohol burner by covering it with a lid. Allow the equipment to cool.
- When washing dishes, use hot water and a scrub brush. If necessary, you can soak stubborn stains.

6.6. Working with an online course

- Obtain an account at the educational institution and activate the right of access to the course; the validity period of the license is counted from the date on which access is transferred.
- Select the topic of the lesson in the course list: every topic is accompanied by a plan, a list of equipment, an experiment scenario, a step-by-step instruction, a video demonstration and interactive tasks.

- Formulate a query to the assistant on the topic of the lesson — it will suggest appropriate experiments, set out the sequence of actions, examine typical errors and advise how to correct them.
- Set the level of difficulty of the tasks to match the preparation of the class; on the basis of the results of the work the assistant will help to draw up the report and to organize the conclusions.

7. Care, maintenance and possible malfunctions

7.1. Cleaning

- After each experiment, wash all dishes with hot water and detergent.
- To remove stubborn dirt, soak the dishes in hot water for 30 minutes, then scrub with a brush.
- Dry glassware with paper or a soft, lint-free cloth.
- Wipe metal parts (tongs, spoon) with a dry cloth immediately after washing to prevent rusting.
- Clean the rubber plugs with a soft brush and air dry by wiping with a lint-free cloth.

7.2. Periodic control

- Inspect cookware monthly for cracks, chips, and microcracks that could lead to injuries or leaks.
- Check the tightness of the plugs and lids; replace damaged ones with new ones.
- Check the graduated scales on the glass; clean any erased markings with a special solution or carefully renew them.
- Damaged dishes cannot be repaired; they are immediately removed from the set and replaced with a new one.

7.3. Possible malfunctions and ways to eliminate them

Symptom	Possible cause	User actions
The glassware becomes dull or cloudy	Mineral deposits from hard water; minor scratches on the surface	Rinse in distilled water; shallow scratches do not affect the functionality of the dish
The stopper gets stuck in the glassware	Dried liquid; improper storage	Gently rub the cork with hot water; do not force it out.
The scale on the cylinder is erased.	Aggressive cleaning with abrasives	Read the volume from the lower edge of the meniscus; replace the container if the marking is not visible.

Symptom	Possible cause	User actions
The glassware has cracked or broken	Impact, drop, thermal shock	Remove broken pieces while wearing gloves; replace with similar utensils.
The flame of the alcohol burner is weak.	Not enough fuel; dirty wick	Add alcohol; clean the wick with a soft brush

8. Storage and transportation conditions

- Store the set in a dry closed room at a temperature not lower than +5 and not higher than +40 °C and relative humidity up to 80 % without condensation.
- Place dishes in the box in layers, sandwiching each layer with foam or paper to prevent them from touching.
- Keep the set away from dust, direct sunlight, vibration and mechanical impacts.
- Store reagents that may be included in the kit in a cool, well-ventilated place in their original containers.
- When transporting, pack the set in a rigid box with all components securely fastened.
- The storage period before commissioning is unlimited provided that the stated requirements are observed.

9. Warranty obligations

- 9.1. The warranty period of the product is 12 months from the date of sale specified in the warranty card.
- 9.2. The manufacturer guarantees that the product complies with the declared technical characteristics, provided that the rules for transportation, storage and operation set out in this passport are followed.
- 9.3. During the warranty period, product defects that have arisen due to the manufacturer's fault will be eliminated free of charge. The method of elimination (repair, component replacement or product replacement) is determined by the service center.
- 9.4. Warranty service is provided upon receipt of a correctly and completely filled out warranty card and a document confirming the fact and date of purchase.
- 9.5. The warranty does not apply to cases where the malfunction is caused by:
 - mechanical damage, in particular cracks, chips and deformation of the housing and of the components of the product;
 - violation of the operating, storage or transportation rules set out in this passport;

- ingress of liquid or foreign objects into the product, and also the action of insects and animals;
- independent disassembly, repair or modification of the product, in particular repair at unauthorized workshops;
- use of the product other than for its intended purpose;
- force majeure circumstances (fire, flood, earthquake, etc.).

9.6. The warranty does not apply to natural wear and tear of the coating and appearance of the product, as well as to consumables.

10. Product disposal

- The product is not electrical or electronic equipment, therefore the marking in the form of a crossed-out container does not apply to it.
- After the end of the service life, the product is disposed of according to the rules established at the institution that operated it, with prior separation by materials.
- Hand over the packaging elements (cardboard, polymer materials) to the corresponding streams of recyclable materials.

Contacts

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Conditions of use and storage of the product

The product is intended for educational work in general secondary education institutions and is used only under the control and supervision of a teaching staff member; the recommended age of students — from 10 years, that is, students of grade 5 and of higher grades. Keep the product in a dry, clean and ventilated room at a temperature from +5 to +40 °C and relative air humidity up to 80 % without condensation, separately from heat sources and out of direct sunlight, moisture and dust. Use the product exclusively for its intended purpose and do not allow drops, impacts or other mechanical damage. If you notice damage, a crack or any malfunction, stop working with the product immediately and inform the teacher or the responsible person of the educational institution; repairing the product on your own is prohibited.

WARRANTY CARD

Product name:	Set of glassware for laboratory work in chemistry
Product model:	LABOTRIX GLASSWARE C2
Serial number:	
Date of sale:	
Warranty period:	12 months from the date of sale
Trading organization:	
Signature of the seller:	

The goods have been received in working order, without visible damage, complete, and have been checked in my presence. I have no claims regarding the quality of the goods; I have read and agree to the operating and warranty service conditions.

Full name of the buyer

Buyer's phone number Buyer's signature

Dear Customer!

Thank you for choosing Labotrix products. After-sales service of this product is provided in accordance with the regulations of the company and the legislation of the country of sale. So that we can serve you quickly and without unnecessary formalities, check that this warranty card is filled in correctly at the moment of purchase and keep it together with the payment document throughout the entire warranty period. When applying for repair, hand the product over to the seller or to the service center together with the filled-in card.

Procedure for applying

1. The right to free warranty service for the product is valid for 12 months from the date of sale specified in the warranty card. Within this period, components that have failed due to a manufacturing defect are repaired or replaced without payment from the buyer.
2. Before contacting, make sure that the malfunction is not caused by the reasons listed in section 9 of this passport, and if possible, use the table of possible malfunctions in section 7.3.
3. After the 12-month warranty period, repairs are carried out for a fee; the cost of work and spare parts is determined depending on the nature of the malfunction.

Grounds for refusal of warranty service

The company reserves the right to refuse free service or to perform the work on a paid basis if at least one of the following circumstances is established:

- absence of the warranty card, its incomplete or corrected completion, and also the absence of a document confirming the purchase;
- non-conformity of the serial number of the product with the number specified in the card, or damage to the factory marking;
- traces of independent disassembly, repair or modification of the product;
- damage caused by violation of the operating rules, connection to an unsuitable power source or external mechanical impact;
- damage as a result of force majeure circumstances.

Service Records

Date of entry	Description of the malfunction	Work performed	Position, signature, full name of the responsible person