2C-278
Auramine-rhodamine, solution

In-vitro diagnostic agent

Description

The product 2C-278 is a ready-to-use solution for professional users for application in cytology. It is an aqueous dye solution mixed with phenol. The product comes in 3 different pack sizes: 2C-278.00100 (100ml bottle), 2C-278.00250 (250ml bottle), 2C- 278.01000 (1000ml bottle).

Main components

Auramine O (C.I.41000)	11.3g/l
Rhodamine B (C.I.: 45170)	10g/l
Phenol (CAS 108-95-2)	80g/l
Glycerine (56-81-5)	69%

Purpose

"Auramine-rhodamine solution" is used for cell diagnostics to examine microbacteria. It is a ready-to-use dye solution for professional users. Auramine-rhodamine staining is a decolourisation method for examining bacteria with acid-resistant cell walls (e.g. mycobacteria) by fluorescence microscopy. In particular, pathogens of tuberculosis (Mycobacterium tuberculosis) can be detected by staining.

Sample material and sample preparation

Sampling may only be carried out by qualified personnel. All samples must be processed with state-of-the-art technology. All samples must be clearly labelled.

Sample material: Smear specimens after air drying and heat fixation and pre-treatment such as sputum, smears from fine needle aspiration biopsies, liquid and solid sediments and sections of human tissue.

Test principle

The cell wall of acid-resistant bacteria absorbs dyes very slowly due to the high proportion of wax and lipids and prevents the bacteria from staining. A high concentration of the dye or prolonged heating is required to stain the cell walls. Staining using auramine-rhodamine staining by fluorescence is used to detect acid-resistant bacteria. The staining solution consists of auramine O and rhodamine B. The principle of auramine-rhodamine staining is based on the method of decolourisation without the addition of heat.

Acid-resistant bacteria can be distinguished from other non-acid-resistant bacteria by their colouration and turn red-orange or yellow-green. In addition to the dye solution, acidic alcohol (0.75% HCl solution) is used as a differentiating agent, and potassium permanganate is used as a contrast dye.

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Staining

Before staining, deparaffinise the samples and transfer them to distilled water via a descending ethanol series. The samples are stained with auramine-rhodamine solution and then rinsed under running tap water. The samples are then transferred to fluorescent reagent and washed again under running tap water. The samples are then covered with potassium permanganate and rinsed with tap water. The samples are finally dried.
To ensure the differentiability of the target structures, suitable control specimens should be kept along with the staining.
The usual staining protocols known from literature must be used.
Staining may only be carried out by qualified personnel.

Result

Acid-resistant bacteria	red-orange or yellow-green
Background	black

Precautionary measures

When removing the product, care must be taken to avoid contamination of the storage vessel. Once the solution has been removed, it must not be returned to the canister. If turbidity or solids appear, discard the product. The product is intended for single use and must not be reused.

Storage and shelf life

Store the unopened containers in a dry place at 15 to 25 °C, avoiding direct sunlight.
The shelf life is 2 years. See also the best-before date (BBD) on the label. Once the containers have been opened, the shelf life corresponds to the best-before date, as long as the storage conditions are observed and the solution is handled properly.

Safety notice

If any serious incidents occur in connection with the product, please report them to the manufacturer and the national authority.

Literature

Romeis, Mikroskopische Technik, Editors: Maria Mulisch, Ulrich Welsch, 2010, Springer Spektrum, 18th edition

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