| | | | |
|---|---|---|---|
| **Product Name** | Yeast Glucose Chloramphenicol Agar (YGC Agar) | **Cat. No.** | AS-1381 |
| **Medium Type** | Selective solid culture medium (agar) | **HS Code** | 3821.00.00 |
| **Form** | Dehydrated powder | **Pack Size** | 100 g \| 250 g \| 500 g \| 1 kg |
| **Equivalents** | Oxoid CM0920 \| BD Difco 212490 \| HiMedia M403 \| Merck 1.16000 | | |

## 1. Product Description

Yeast Glucose Chloramphenicol Agar (YGC Agar, AS-1381) is a dehydrated selective culture medium for the isolation, cultivation, and enumeration of yeasts and molds from food, beverage, pharmaceutical, cosmetic, water, and environmental samples. Chloramphenicol (0.1 g/L) suppresses Gram-positive and Gram-negative bacterial contamination while the elevated glucose (20 g/L) and slightly acidic pH (6.6) support robust recovery of a broad range of yeasts and filamentous molds.

Compatible with ISO 21527-1 and ISO 21527-2 workflows for yeast and mold enumeration in food and animal feeding stuffs. Widely used in pharmaceutical microbial limit testing (EP, USP), cosmetic QC (ISO 17516), and environmental monitoring.

## 2. Composition (per litre of prepared medium)

| Ingredient | g/L | CAS | Function |
|---|---|---|---|
| Glucose (D-Glucose) | 20.0 | 50-99-7 | Primary carbon source; elevated level supports rapid, broad fungal growth |
| **Yeast Extract** | 5.0 | 8013-01-2 | B-vitamins, amino acids, nucleotides and accessory growth factors for diverse fungal species |
| Chloramphenicol | 0.1 | 56-75-7 | Broad-spectrum bacteriostatic — inhibits bacterial 50S ribosomal protein synthesis; fungi (80S ribosomes) unaffected |
| **Agar** | 14.9 | 9002-18-0 | Solidifying agent; supports colony development and morphology assessment |

**Total: 40.0 g/L | Final pH 6.6 ± 0.2 at 25°C | Autoclave 121°C / 15 min**

## 3. Physicochemical Specifications

| Parameter | Specification | Method |
|---|---|---|
| Appearance (powder) | Beige to light cream, free-flowing powder | Visual |
| **Appearance (prepared medium)** | Pale amber, clear agar | Visual after dissolution |
| pH (prepared, 25°C) | 6.6 ± 0.2 | Potentiometric (calibrated electrode) |
| **Dissolution** | Complete at 40 g/L with heating | Visual inspection |
| Moisture Content (LOD) | <= 5.0% (w/w) | Loss on drying, 105°C |

| Parameter | Specification | Method |
|---|---|---|
| **Storage (powder)** | Cool, dry, tightly sealed, protected from moisture and light | — |
| Storage (prepared plates) | 2-8°C, sealed bags, protected from light. Use within 2 weeks. | — |

## 4. Preparation Protocol

1. Suspend 40 g of dehydrated YGC Agar (AS-1381) in 1 litre of distilled or deionised water. Mix to disperse powder.
2. Heat with continuous agitation until completely dissolved. Medium should appear pale amber and clear. Bring just to boiling.
3. Autoclave at 121°C for 15 minutes. Do not overheat — excessive heat degrades chloramphenicol and darkens the medium.
4. Cool to 45-50°C in a water bath before pouring. Aseptically pour approximately 20 mL per 90 mm Petri dish.
5. Allow to solidify completely. Prepared plates may be stored at 2-8°C in sealed bags, protected from light, for up to 2 weeks.
6. Inoculate and incubate at 25°C for 3-5 days. Allow up to 7 days for slow-growing filamentous molds. Do not invert plates.

## 5. Mode of Action

| Mechanism | Component | Effect |
|---|---|---|
| Antibiotic selectivity | Chloramphenicol 0.1 g/L | Binds 50S bacterial ribosomal subunit — bacteriostatic for Gram-positive and Gram-negative organisms. Fungi use 80S ribosomes — unaffected. |
| **Nutritional enrichment** | Glucose 20 g/L + Yeast Extract 5 g/L | High glucose supports rapid fungal carbon metabolism. Yeast extract provides vitamins and growth factors for diverse fungal species including slow-growing molds. |
| pH optimisation | pH 6.6 +/- 0.2 | Near-neutral pH optimal for most fungi; mildly restrictive for some bacteria without reducing recovery of acid-sensitive fungal species. |

## 6. Quality Control Performance

| Test Organism | ATCC Strain | Expected Result (25°C / 3-5 days) |
|---|---|---|
| Candida albicans (POSITIVE) | ATCC 10231 | Good to excellent growth — cream to white yeast colonies |
| **Aspergillus brasiliensis (POSITIVE)** | ATCC 16404 | Good to excellent growth — black conidial heads characteristic |
| Saccharomyces cerevisiae (POSITIVE) | ATCC 9763 | Good growth — white to cream colonies |
| **Escherichia coli (NEGATIVE)** | ATCC 25922 | Inhibited — no significant growth |
| Staphylococcus aureus (NEGATIVE) | ATCC 25923 | Inhibited — no significant growth |

| Test Organism | ATCC Strain | Expected Result (25°C / 3-5 days) |
|---|---|---|
| **Bacillus subtilis (NEGATIVE)** | ATCC 6633 | Inhibited — no significant growth |

## 7. Typical Applications

| Sector | Application |
|---|---|
| Food & Beverage QC | Yeast and mold counts in dairy, bakery, beverages, sauces, jams — ISO 21527-1/2 |
| **Pharmaceutical QC** | Microbial limit testing for TYMC per EP 2.6.12, USP <61>/<62>, TGA guidelines |
| Cosmetics QC | Microbial limit and challenge testing per ISO 17516 |
| **Water Microbiology** | Fungal monitoring in treated water, process water, recreational water |
| Environmental Monitoring | Air settle plates, surface swabs, cleanroom and pharmaceutical facility monitoring |
| **Research & Teaching** | Fungal physiology, mycology courses, QC method development and validation |

## 8. Storage & Shelf Life

- Powder: Store in a cool, dry location, tightly sealed, protected from moisture and direct light. Protect chloramphenicol component from prolonged UV exposure.
- Prepared plates: Store at 2-8°C in sealed bags, protected from light. Use within 2 weeks of preparation.
- Shelf life: As stated on label — typically 3-5 years from date of manufacture under recommended storage conditions.

## 9. Regulatory & Standards Compliance

| Standard / Regulation | Status / Notes |
|---|---|
| ISO 21527-1:2008 | Compatible — yeast and mold enumeration, products with water activity > 0.95 |
| **ISO 21527-2:2008** | Compatible — yeast and mold enumeration, products with water activity <= 0.95 |
| European Pharmacopoeia 2.6.12 | Compatible for TYMC (Total Yeast and Mould Count) testing |
| **ISO 11133:2014** | Performance testing per culture media quality standard |
| HS / AHECC Code | 3821.00.00 — Prepared culture media for development of microorganisms |

## 10. Literature References

7. Mossel DAA, Visser M, Mengerink WHJ. A comparison of media for the enumeration of molds and yeasts in foods. Laboratory Practice. 1962;11:109-112. [Original YGC medium reference]
8. ISO 21527-1:2008. Microbiology of food and animal feeding stuffs — Horizontal method for enumeration of yeasts and moulds — Part 1. ISO, Geneva.
9. ISO 21527-2:2008. Microbiology of food and animal feeding stuffs — Horizontal method for enumeration of yeasts and moulds — Part 2. ISO, Geneva.
10. European Pharmacopoeia 11th Edition. 2.6.12 Microbiological Examination of Non-Sterile Products. Council of Europe.

11. ISO 11133:2014. Culture media — Preparation, production, storage and performance testing. ISO, Geneva.