# 5X Minimum Salts

## Intended Use
5X Minimum Salts is recommended for use in cultivation of recombinant strains of *Escherichia coli*.

## Summary
5X Minimum Salts medium is prepared based on the formulation of Davis *et al.,*. It is recommended for use in cultivation of recombinant strains of *Escherichia coli. Escherichia coli* is the most widely used microbial strain in genetic recombination studies.

## Principle
Ammonium chloride is added as a nitrogen source. Glucose serves as the carbon and energy source while two phosphates buffer the medium against pH changes due to utilization of carbohydrate. Calcium and magnesium ions are required in a variety of enzymatic reactions including DNA replication. Sodium chloride maintains the osmotic balance.

## Formula*

| **Ingredients** | **g/L** |
|---|---|
| Disodium Phosphate | 33.9 |
| Potassium Phosphate | 15.0 |
| Sodium Chloride | 2.5 |
| Ammonium Chloride | 5.0 |
| Final pH (at 25°C) | 6.8 ± 0.2 |

*Adjusted to suit performance parameters

## Storage and Stability
Store dehydrated medium below 30°C in tightly closed container and the prepared medium at 2°C-8°C. Avoid freezing and overheating. Use before expiry date on the label. Once opened keep powdered medium closed to avoid hydration.

## Specimen Collection and Handling
Ensure that all samples are properly labelled. Follow appropriate techniques for handling samples as per established guidelines. Some samples may require special handling, such as immediate refrigeration or protection from light, follow the standard procedure. The samples must be stored and tested within the permissible time duration. After use, contaminated materials must be sterilized by autoclaving before discarding.

## Directions
1. Suspend 56.40 g of powder in 1000 mL purified / distilled water.
2. Heat if necessary, to dissolve the powder completely.
3. Dispense in 200 mL aliquots.
4. Sterilize by autoclaving at 121°C (15 psi) for 15 minutes as per validated cycle.
5. To prepare minimal medium, add 200 mL sterile 5X Minimal Salts to 750 mL sterile distilled water.
6. Aseptically add 20 mL filter sterilized 20% glucose solution and 2 mL sterile 0.1 M Magnesium sulphate ($MgSO_4$) solution.
7. If desired, add sterile 0.1 mL of 1.0 M Calcium chloride solution or amino acids as required.
8. Mix well. Adjust final volume to 1000 mL.

## Quality Control
**Dehydrated Appearance:** White to cream, homogenous, free flowing powder.
**Prepared Appearance:** Colourless clear solution without any precipitate
**Cultural Response:** Cultural characteristics observed after an incubation at 35°C-37°C for 18-24 hours.

| **Organism (ATCC)** | **Growth** |
|---|---|
| *Escherichia coli* (25922) | Good |

## Performance and Evaluation

Performance of the product is dependent on following parameters as per product label claim:

1. Directions
2. Storage
3. Expiry

## Warranty

This product is designed to perform as described on the label and package insert. The manufacturer disclaims any implied warranty of use and sale for any other purpose.

## Reference


1. Davis L. G., Dibner M. D., and Battery J. F., 1986, Basic Methods in Molecular Biology, Elsevier, New York.
2. Sambrook J., Fritsch E. F. and Maniates T., 1989, Molecular Cloning: A Laboratory Manual, 2nd Ed., Cold Spring Harbour Laboratory, Cold Spring Harbour, N.Y.
3. Data on file: Microxpress®, A Division of Tulip Diagnostics (P) Ltd.


## Product Presentation:

| Cat No. | Product description | Pack Size |
|---|---|---|
| 201270710500 | Dehydrated Culture Media | 500 g |