

# Hanks' Balanced Salts

**With Phenol red**

**Without Sodium bicarbonate**

**Product Code: TS1003**

## Product Description :

All media used in tissue culture have a basis of a synthetic mixture of inorganic salts known as a physiological or balanced salt solution (BSS). All the physiological salt solutions have been derived from the salt solution originally described by Sydney Ringer (1885). The first balanced salt solution to be developed specifically for supporting the metabolism of mammalian cells was Tyrode's solution. Since then many modifications have been done to obtain better buffering salt solutions and to prevent calcium precipitation.

The function of a salt solution is:

- To maintain the medium within physiological pH range.
- To maintain intracellular and extra cellular osmotic balance.
- Modified with a carbohydrate, such as glucose serves as an energy source for cell metabolism.

Hanks' Balanced Salts is designed to equilibrate with air, hence does not require CO<sub>2</sub> air mixture. TS1003 is 1X powdered Hanks' Balanced Salts mixture with phenol red designed for use with cells maintained in less CO<sub>2</sub> environment or CO<sub>2</sub> free environment.

## Composition :

Ingredients	mg/L
<b>INORGANIC SALTS</b>	
Calcium chloride dihydrate	185.410
Disodium hydrogen phosphate	48.000
Magnesium sulphate anhydrous	97.720
Potassium chloride	400.000
Potassium dihydrogen phosphate anhydrous	60.000
Sodium chloride	8000.000
<b>OTHERS</b>	
D-Glucose	1000.000
Phenol red sodium salt	11.000

## Directions :

1. Suspend 9.8gms in 900ml tissue culture grade water with constant, gentle stirring until the powder is completely dissolved. Do not heat the water.
2. Add 0.350gms of Sodium bicarbonate powder or 4.7ml of 7.5% Sodium bicarbonate solution (TCL013) for 1 litre of solution and stir until dissolved.
3. Adjust the pH to 0.2-0.3 pH units below the desired pH using 1N HCl or 1N NaOH since the pH tends to rise during filtration.
4. Make up the final volume to 1000ml with tissue culture grade water.
5. Sterilize the solution immediately by filtering through a sterile membrane filter with a porosity of 0.22 micron or less, using positive pressure rather than vacuum to minimize the loss of carbon dioxide.
6. Aseptically dispense the desired amount of sterile solution into sterile containers.
7. Store the liquid solution at ambient temperature and in dark till use.

## Material required but not provided :

Tissue culture grade water (TCL010)  
Sodium bicarbonate (TC230)  
1N Hydrochloric acid (TCL003)  
1N Sodium hydroxide (TCL002)  
Sodium bicarbonate solution (TCL013)

## Quality Control:

### Appearance

White to light pink, homogenous powder

### Solubility

Clear solution at 9.8 gms/L

### pH without Sodium Bicarbonate

6.20 -6.80

**pH with Sodium Bicarbonate**

7.00 -7.60

**Osmolality without Sodium Bicarbonate (mOsm/Kg H<sub>2</sub>O)**

270.00 -310.00

**Osmolality with Sodium Bicarbonate (mOsm/Kg H<sub>2</sub>O)**

280.00 -320.00

**Endotoxin Content**

NMT 1EU/ml

**Toxicity Test**

Passes

**Storage and Shelf Life:**

1. All powdered salt mixtures and prepared salt solutions should be stored at ambient temperature. Use before the expiry date. In spite of above recommended storage condition certain powdered salts may show some signs of deterioration /degradation in certain instances. This can be indicated by change in colour, change in appearance and presence of particulate matter and haziness after dissolution.
2. Preparation of concentrated solutions is not recommended as salt complexes having low solubility may precipitate in concentrated solutions.
3. If desired, sterile supplements can be added to the sterile solution observing all sterility precautions. Shelf life of the solution will depend on the nature of supplements added to the solution.

Revision : 02 / 2019

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