# Technical Information

## Tomato Regeneration Medium

### With Vitamins, Sucrose And CleriGel

## Product Code: PT1130G

**Application:** Tomato Regeneration Medium has been formulated on the basis of Murashige and Skoog medium for the *in vitro* regeneration of *Solanum lycopersicum*, family *Solanaceae*. It is widely used for the micro propagation, protoplast culture, callus culture and suspension culture of tomato. The formulation is a nutrient blend of inorganic salts, vitamins, amino acid, carbohydrate, growth regulator and gelling agent.

Tomato Regeneration Medium provides all essential macroelements and microelements. Potassium nitrate and ammonium nitrate serve as sources of nitrogen and stimulates morphogenesis. Potassium dihydrogen phosphate provides phosphate. Microelements like Boron, Manganese, Molybdenum, Copper, Iron and Zinc play vital role in plant metabolism. Boron plays a key role in carbohydrate metabolism. Thiamine, pyridoxine, nicotinic acid act as enzymatic cofactors in universal pathways including glycolysis and TCA cycle along with primary and secondary metabolism in the plants. Glycine serves as a source of amino acid. Zeatin promotes effective shoot regeneration along with cell proliferation.

CleriGel, a gellan gum is used as an alternative to agar. It offers several advantages over conventional agar as it sets a clear gel which assists easy observation of cultures and their possible contamination. Unlike agar, gel strength of CleriGel is unaffected over a wide range of pH and contains no contaminants like phenolic compounds that can be toxic to plant tissues. It solidifies uniformly and rapidly.

The product is plant tissue culture tested but it is the sole responsibility of the user to ensure the suitability of the medium for individual species.

## Composition**

| Ingredients | mg/Litre |
|---|---|
| **MACROELEMENTS** | |
| Ammonium nitrate | 1650.000 |
| Calcium chloride | 332.200 |
| Magnesium sulphate | 180.690 |
| Potassium nitrate | 1900.000 |
| Potassium phosphate monobasic | 170.000 |
| **MICROELEMENTS** | |
| Boric acid | 6.200 |
| Cobalt chloride hexahydrate | 0.025 |
| Copper sulphate pentahydrate | 0.025 |
| EDTA disodium salt dihydrate | 37.300 |
| Ferrous sulphate heptahydrate | 27.800 |
| Manganese sulphate monohydrate | 16.900 |
| Molybdic acid (sodium salt) | 0.213 |
| Potassium Iodide | 0.830 |
| Zinc sulphate heptahydrate | 8.600 |
| **VITAMINS** | |
| Nicotinic acid (free acid) | 0.500 |
| Pyridoxine HCl | 0.500 |
| Thiamine hydrochloride | 0.100 |
| myo-Inositol | 100.000 |
| **AMINO ACID** | |
| Glycine | 2.000 |
| **CARBOHYDRATE** | |
| Sucrose | 30000.000 |
| **GELLING AGENT** | |
| CleriGel | 2000.000 |
| **OTHERS** | |
| Zeatin | 0.500 |
| **Total (gms/litre)** | 36.4 |

## Material required but not provided

- Autoclaved distilled water
- Plant growth regulators
- 1N NaOH/HCl

## Quality Control

**Appearance**

White to off-white, homogenous, free flowing powder

**Solubility**

36.4 gms/litre soluble after boiling in distilled water

**Colour and Clarity**

Colourless to light yellow solution, clear gel is formed on cooling

**Gelling**

Firm gel formed at pH: 5.75 ± 0.5

**pH at 25ºC**

4.30 - 5.30

**Plant Tissue Culture Test**

The growth promoting properties of medium is assessed by providing plant cultures with relative humidity of about 60%±2%, temperature 22ºC±2ºC and photoperiod of about 16:8. The plant species showed actively growing callus and shoots with no structural, necrotic and toxic deformity.

## Directions

- Reconstitute medium by adding required quantity of powder in two-third of total volume with constant, gentle stirring till the medium gets completely dissolved.
- Add heat stable supplements prior to autoclaving.
- Make up the final volume with distilled water.
- Adjust the pH of the medium to 5.75 ± 0.5 using 1N NaOH/HCl.
- Add gelling agent and heat the medium to boiling till complete dissolution of gelling agent.
- Sterilize the medium by autoclaving at 15 lbs and 121°Cfor 15 min.
- Cool the autoclaved medium to about 45°C before adding heat labile supplements.
- Aseptically dispense the desired amount of medium under a laminar airflow unit in sterile culture vessels

## Storage and Shelf Life

- The plant tissue culture medium powder is extremely hygroscopic and must be stored at 2-8°C in air tight containers.
- Preferably, entire content of each package should be used immediately after opening.
- Use before the expiry date.

## Precautions

- Ensure appropriate pH of the medium before addition of gelling agent as acidic pH will lead to decreased gelation resulting in semi solid flowing gel while alkaline pH will lead to formation of hardened gel.
- Use of Distilled water/Tissue culture grade water is recommended for media preparation as tap water or lower grade water may lead to salt precipitation and improper gelation.
- Avoid preparation of concentrated solutions, as it will lead to precipitation of salts.

## Disclaimer

- User must ensure suitability of the product(s) in their application prior to use.
- The product conforms solely to the technical information provided in this booklet and to the best of knowledge research and development work carried at **CDH** is true and accurate.
- **Central Drug House Pvt. Ltd.** reserves the right to make changes to specifications and information related to the products at any time.
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- Do not use the products if it fails to meet specifications for identity and performance parameters.