

IS 18806 : 2024

Hydroponic Farming Production System — Requirements

New technologies are coming up every day in the world. As the world population is growing, the agriculture industry is also developing new techniques to grow food in lesser space and by saving water. The hydroponic growing system is a step towards this. Growing plants in water culture or sand culture without soil are procedures that have been used by physiologists studying plant nutrition and by other plant scientists for more than a century. With land being limited and a rising population in need of proper housing facilities, a method of farm production that enables production without land use can be of great value for India where agriculture still serves as a primary livelihood source for a majority of citizens.

Hydroponics is the technique of growing plants using a water-based nutrient solution rather than soil, and can include an aggregate substrate, or growing media, such as vermiculite, coconut coir, or perlite etc. Hydroponic production systems are used by small farmers, hobbyists, and commercial enterprises. Hydroponics was a successful technique used to supply fresh vegetables in many countries and has been considered as the future of farming to grow foods for astronauts in space by NASA. Hydroponics enables urban farming in the sense that it can be used to cultivate plants on roofs and even in bedrooms.

Hydroponic production system has been identified as one of the priority subjects under Standards National Action Plan 2022-27 developed after multiple stakeholder consultation. Considering the above, this national standard for hydroponic farming production system has been taken up for development in order to provide required guidance to the farming community and all concerned stakeholders. This standard provides recommendations on requirements for substrates, structures, nutrients, maintenance and also the basis for development of conformity assessment scheme in future in order to evaluate the hydroponic farming production system.

IS 18661 : 2024

Precast Concrete Grating — Specification

Precast concrete grating is a popular building material generally preferred over metal grating due to their strength, durability and ability to withstand heavy loads and extreme weather conditions. They are also relatively easy to install and require minimal maintenance, making them a cost-effective option for a wide range of construction projects.

Precast concrete grating is commonly used for applications where strong, durable and slip resistant surface is required. They are widely used in the construction of buildings, bridges, car parking areas, and drainage systems among other applications. Gratings can be manufactured in a range of sizes and shapes to suit the specific needs of a project.

Grating is a type of structural element that consists of a grid of concrete bars or slabs that are reinforced with steel to provide strength and stability. The steel reinforcement is typically in the form of welded wire mesh or steel bars, which are embedded within the concrete during the casting process.

This standard contributes to the Sustainable Development Goal 9 ‘Industry innovation and infrastructure’ — Build resilient infrastructure promote inclusive and sustainable industrialization and foster’.

This standard covers classification, dimensions, manufacture, physical requirements, sampling, criteria of conformity and marking of precast concrete grating. Precast concrete grating is used for covering gullies, manholes, drains and inspection chambers installed in areas subjected to pedestrian and/or vehicular traffic.

IS 18807 : 2024

Artificial Lighting System for Protected Cultivation — Requirements

Light is one of the key requirements for plant growth. Artificial lighting is needed to grow plants in spaces where there is little or no natural light available or when the natural day length is artificially extended. Plants absorb light and use its energy to transform by the process called photosynthesis. Different particles present in plant absorb different wavelengths of light spectrum. Chlorophylls absorb mainly red and blue light, phototropins absorb blue light, cryptochromes absorb UV-A (ultraviolet-A), blue, and green wavelengths; phytochromes absorb red and far-red light UV-B, UV-A, (wavelengths between 280 nm to 380 nm) and far-red irradiation (wavelengths above 700 nm).

Photosynthesis, germination, time of flowering and plant morphology are light dependent activities. These actions are highly related to the surrounding light quality from which the plant perceives signals of its environment. These responses are mediated by wavelengths within and beyond the photosynthetically active radiation (PAR) area, including also UV and far-red irradiation. The ratios of blue to green ratio and red to far-red ratio determine how fast or slow the plant grows.

The standard has been developed in order to provide guidelines and standards for the use of artificial lighting for plant growth in various applications, such as controlled environment agriculture (CEA) and other related fields, in India. This standard will provide recommendations on requirements for lighting system, structures, safety, maintenance and also the basis for development of conformity assessment scheme in future in order to evaluate the artificial lighting system for protected cultivation.