

## SUMMARY

### IS 16190:2014 High Density Polyethylene (HDPE) Laminated Woven Lay Flat Tube For Irrigation Purpose — Specification

This standard prescribes constructional and other requirements for high density polyethylene (HDPE) laminated woven lay flat tube for irrigation purpose. These lay flat tubes are used at the delivery lines of the agriculture pump sets, which may be exposed to atmosphere and sunlight.

Transportation of the water from ponds, canal or borewell to the various part of the field for agriculture is of paramount importance. High density polyethylene laminated woven lay flat tube has been developed to easily transport water in the agriculture field and have an advantage of lighter in weight. These lay flat tubes do not require fixed installation and can transport water at the place of choice easily. Farmers are expected to incur less fixed expenditure to irrigate their field at considerably lower running cost as compare to the existing piping systems. These lay flat tubes can sustain the actual field conditions like uneven field surface, extreme climatic conditions, resistance to puncture etc.

Lay flat tube shall be manufactured from HDPE woven fabric conforming to variety No. 2 of IS 6899. The HDPE woven fabric shall have a minimum of 39 tapes/dm in warp and weft direction.

A 5 layer laminated fabric is produced using a combination of 2 layers of HDPE fabric and 3 layers of coating film. The minimum coating thickness shall be 35  $\mu$ . The layers of HDPE fabric used to manufacture lay flat tubes, shall be joined by sandwich lamination. The minimum thickness of the sandwich lamination shall be 40  $\mu$ .

Based on diameter, the HDPE Lay Flat Tube covers HDPE laminated woven lay flat tube of internal diameter 50, 63, 75, 90, 110, 125, 150, 175 and 200 mm for irrigation purpose.

The standard specifies the basic performance requirements such as Mass ( $\text{g}/\text{m}^2$ ), Breaking strength before UV exposure, Percentage change in Breaking strength after UV exposure, Abrasion resistance, Trapezoid tear strength, Puncture strength, Environmental stress cracking test, Cold cracking resistance test at  $-5^\circ\text{C}$  etc.

By implementing this standard, it will make irrigation more portable and accessible, providing enhanced mobility and independence for users with storage constraints.