4 PIPES
PVC

Meeting the European Nordic Quality Requirements for PVC Pipes with Recycled Material

To ensure the highest possible quality of plastic pipes for the Nordic market, the Nordic Poly Mark currently only allows virgin material or own reprocessed material.

In order to accelerate the circular plastic pipe economy in the Nordics, a partnership between a PVC pipe waste collection system, a PVC pipe producer and a utility company was established in Denmark. The aim was to test whether PVC-U sewer pipes including post-consumer PVC recyclates could meet the strict quality requirements of the Nordic Poly Mark certification scheme.

The several performance tests run so far have confirmed that the pipes with up to 70% recycled PVC perform as well as pipes made from 100% virgin PVC. Lifecycle analysis calculations showed a 50% reduction in the Global Warming Potential impact category, as compared to pipes fully made from virgin PVC.

The project step-by-step

01. COLLECTION

The PVC pipe waste was collected among local sewage installation companies.

02. REPROCESSING

The PVC was reprocessed by the plastic pipe manufacturer

03. LEAD TESTING

The Danish Statuary Order on Lead prohibited use of recycled PVC with lead until Regulation (EU) 2023/923 went into force in May 2023. A sample was therefore sent to the Danish Technological Institute for testing of lead. No lead was detected.

04. CO-EXTRUSION

The reprocessed PVC was co-extruded with virgin PVC to create a batch of 200 mm OD sewer pipes with three solid layers.

05. PIPE TESTING

Tests confirmed that the PVC pipes with 70% recycled content perform as well as pipes made from 100% virgin PVC. The Nordic Poly Mark testing regime includes hydrostatic pressure test at 60°C to demonstrate a 100-year design lifetime and impact test at –10°C.

06. INSTALLATION

The PVC pipes were installed in Lemvig, Denmark in early 2023. Monitoring of the pipes' performance has been implemented.

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