



## AP- Nylon Materials

### Application sheet 04

## Nyrim® Railway enclosure

**Brüggemann Chemical** provides raw materials for three distinct families of **AP-Nylon**

(polyamides produced by **Anionic Polymerization**) used in a wide range of applications.

Mechanical properties of these AP-Nylons extend from thermoplastic polyamides into rubber-like elastomeric materials.

**AP Caprolactam** along with different catalyst systems (**Bruggolen® C**) leads to standard cast Nylon 6.

**Nyrim®** is elastomer toughened, recyclable, thermoplastic Nylon 6 for industrial Reaction Injection Molding (RIM), Injection Molding and Rotomolding applications. Nyrim® usually contains 10-40% built-in elastomer, depending on the specific performance needs.

The stiffness / toughness combination of Nylon-6 and elastomer gives excellent impact resistance, wear resistance and repetitive load (fatigue) endurance.

Nyrim® can be selectively reinforced with glass fiber or glass mats and can also be filled with mineral fillers.

**Star-Rim** is a toughened Nylon suitable for RIM processing. It can also be reinforced with glass or filled with mineral fillers.

**RIM processing** is the preferred method to manufacture large, complex or thick parts. RIM processing allows for large design flexibility.

Pressures are lower than injection molding pressures, resulting in lower mold and manufacturing costs.

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This enclosure is placed directly next to the rails where it houses sensitive electronic equipment. Primarily it has to withstand impact forces of stones that can be launched by a passing train, at ambient and subzero temperatures. It also has to withstand vandalism forces and to be resistant to the vibrations caused by a passing train.

The selected Nyrim formulation meets electrical requirements and ensures long life and service of the component under severe climatic conditions including UV radiation.

It is a robust part having ribs, lugs and stainless steel inserts. Nyrim's ease of processing allows optimizing wall thickness in function of required part strength thus minimizing part weight.

#### Important features for this application

##### Physical properties features

- High impact strength at ambient temperatures and at -40C
- UV stable

##### RIM design features

- Easy molding-in of steel inserts
- Design flexibility allows for extreme changes in wall thickness