

## Case Study

### Seat bucket and back of flame retardant Durethan® DP 1801/30 H3.0 for railroad applications



Figure 1 Seat bucket and back of DP 1801/30

For over 40 years, [HS Plastics](#) has been producing all types of plastics for almost every branch and segment of industry at its site in Lemgo. Engineered moldings with unit weights of up to 14 kg can be produced via injection molding in machines with a closing force of between 15 and 2,000 metric tons. HS Plastics produces primarily custom parts for demanding applications developed in collaboration with its customers, such as Franz Kiel GmbH. The seat bucket and back for bus and railroad applications shown in Fig. 1 is one example. These are upholstered and covered for greater comfort.

Deutsche Bahn requires that products comply with the German and Canadian standard to DIN 5510-2 (Preventive fire protection in railway vehicles), ASTM D635-10 (Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position) and ASTM E662-09 (Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials).

**OEM:** Franz Kiel GmbH & Co. KG,  
Germany

**Grade:** Durethan® DP 1801/30 H3.0

**Manufacturer:** HS-Plastics GmbH, Germany

Only a few products on the plastics market satisfy these standards.

For this project, HS Plastics chose the flame-retardant Durethan grade DP 1801/30, which is also reinforced with 30 % glass fibers. The LANXESS product was being considered together with a competing product.

Durethan DP 1801/30 impressed by satisfying the required test standards and with the following properties:

- GWFI (glow wire flammability index) of 960 °C at 0.8 and 1.6 mm,
- GWIT (glow wire temperature) of 775 °C at 0.75 mm,
- UL94V-2 at 1.6 mm and
- outstanding mechanical properties.

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