Solutions for EV/FCV Battery Coolant Pipes

Contributing to Improvement of Safety & Pipe Bending Process

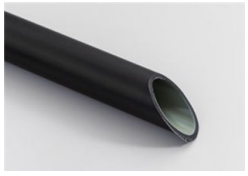
Product Overview

As batteries grow larger in size, the pipes or tubes that connect their various subsystems must span longer distances, and extrusion molding is an increasingly common technique for fabricating long pipes. Asahi Kasei offers two types of resin solutions for cooling lines in EV/FCV water-cooling systems—and technical support to help customers exploit these products for lighter-weight components to increase energy efficiency.

1) *LEONA™—XYRON™ multilayer pipes*
Good bending properties, low elution, good LLC resistance, two-layer production (no adhesive layer required)
2) *LEONA™ PA612 resins for monolayer pipes*
Full lineup of product grades offers a good cost balance

Application Fields

- EV/FCV Battery Coolant Pipes



Benefits for Customers

- Reduced processing time
- Greater freedom in layout design

Further Information

Visit: https://www.asahi-kasei-plastics.com/en/trend/cooling-line/

Material Properties

	PA / m-PPE multilayer	PA / PP multilayer	PA monolayer	PP monolayer	EPDM
Bending properties	+++	+	++	++	+
Resistance to heat and LLCs	~130°C	~130°C	approx.100°C	below 80°C Application-limited	Above 130°C
Flexibility	+	+	++	–	+++
Low Elution	+++	+++	++	+++	+
Material cost	+	++	+	+++	+++
Extrusion cost	++	++	+++	+++	+
Cost of bending process	++	+	++	++	+
Weight	++	++	++	++	+

Key Properties

Bending workability

LEONA™—XYRON™ multilayer pipes have minimal bending back properties

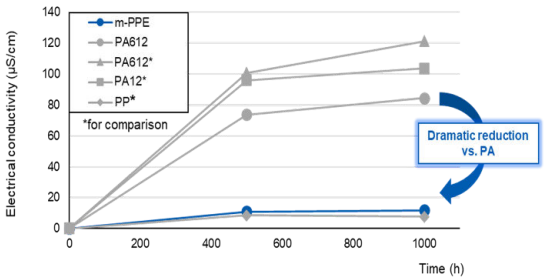
After 24 hours at 80℃

Bending Back Test

1. Preheat pipes in oven
2. Bend a pipe 90 deg. with a pipe bender
3. Cool at room temperature for 3 minutes
4. Blow air through pipe for 20 sec
5. Put pipes in oven at 80 deg.-C for 24 hr
6. Measure the bending back angle

Low ion elution properties

m-PPE pipes preserve the low electrical conductivity of fluids



Immersion Test for electrical conductivity measurement
Temperature: 95 deg.-C Medium: Purified water (2.5L)
Specimen: 60*60*2mm plates (16 pcs)
Time: 500/1000 hr

Creating for Tomorrow

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