

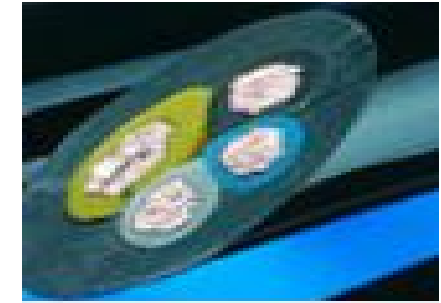
Elastollan® HPM

A New Series of High Temperature
and High Performance TPU

New Product Showcase



October 15, 2018



Overview

■ Purpose

Introduce BASF and Elastollan[®] TPU and highlight recent innovations in High Temperature grades (125°C and 150°C)

■ Summary

BASF – Global chemical company that manufactures Elastollan[®] TPU.

Elastollan[®] TPU – Polyurethane thermoplastic used as jacketing material in W&C.

Innovations – new HPM grades that meet ISO 6722 for 125°C and 150°C

Who is BASF?



BASF is world's largest chemical company, with the resources to help grow your business

380 Production Facilities

\$2.3 Billion R&D

Largest in Chemical Industry

Elastollan® TPU manufacturing, testing labs and business located in Michigan, New Jersey

\$98.4 Billion 2017 Sales

113,000 Employees



Cable jacketing for UL 1581 dry temperature rating of 90°C and 105°C.

Screening Results		
Product	90°C	105°C
Elastollan 1185A10FHF	PASS	PASS
Elastollan 1190A10FHF	TBD	PASS
Elastollan 1192A11FHF	TBD	PASS
Elastollan 3092A10HFFR	PASS	PASS
Testing was performed on 1.6mm extruded films		

Requirements of Section 50 of UL1581
 Pass 90°C rating - 7 d @ 121°C maintain 65 percent tensile strength and 70 percent of ultimate elongation. Minimum tensile strength and elongation of unaged sample of 12.9 Mpa and 300%, respectively.

Pass 105°C rating - 7 d @ 136°C maintain 35 percent tensile strength and 85 percent of ultimate elongation. Minimum tensile strength and elongation of unaged sample of 17.2 Mpa and 450%, respectively.

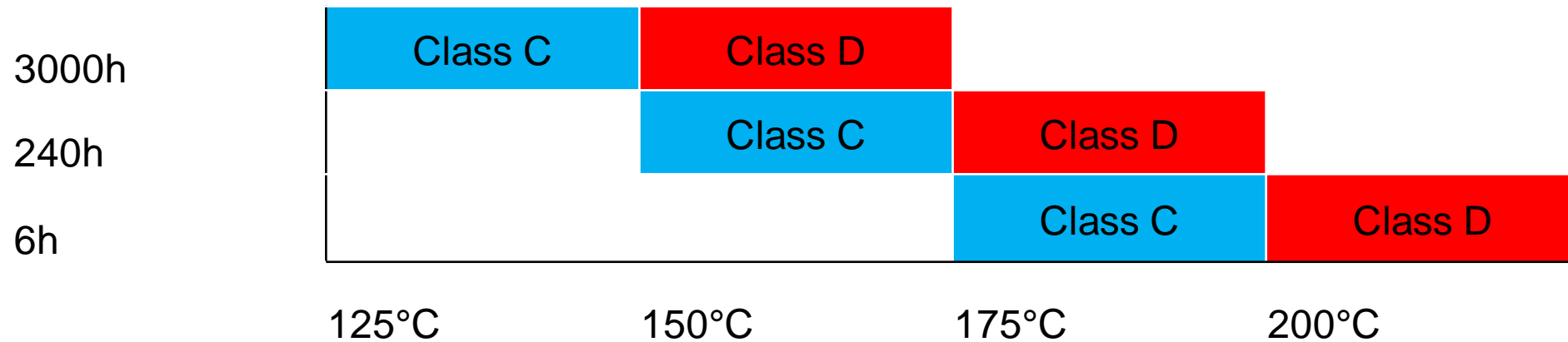
Samples were prepared and tested in accordance with UL 2556. Results of the testing were compared to Section 50 of UL 1581.

Provided for Guidance Only. UL 1581 certification is for finished cables. This testing was performed by BASF on extruded films to provide guidance on grades of Elastollan that might be suitable for UL 1581. The reader should carry out its own investigations and tests to determine the suitability of a product for its particular purpose prior to use.

Temperature classes

ISO 6722/LV112

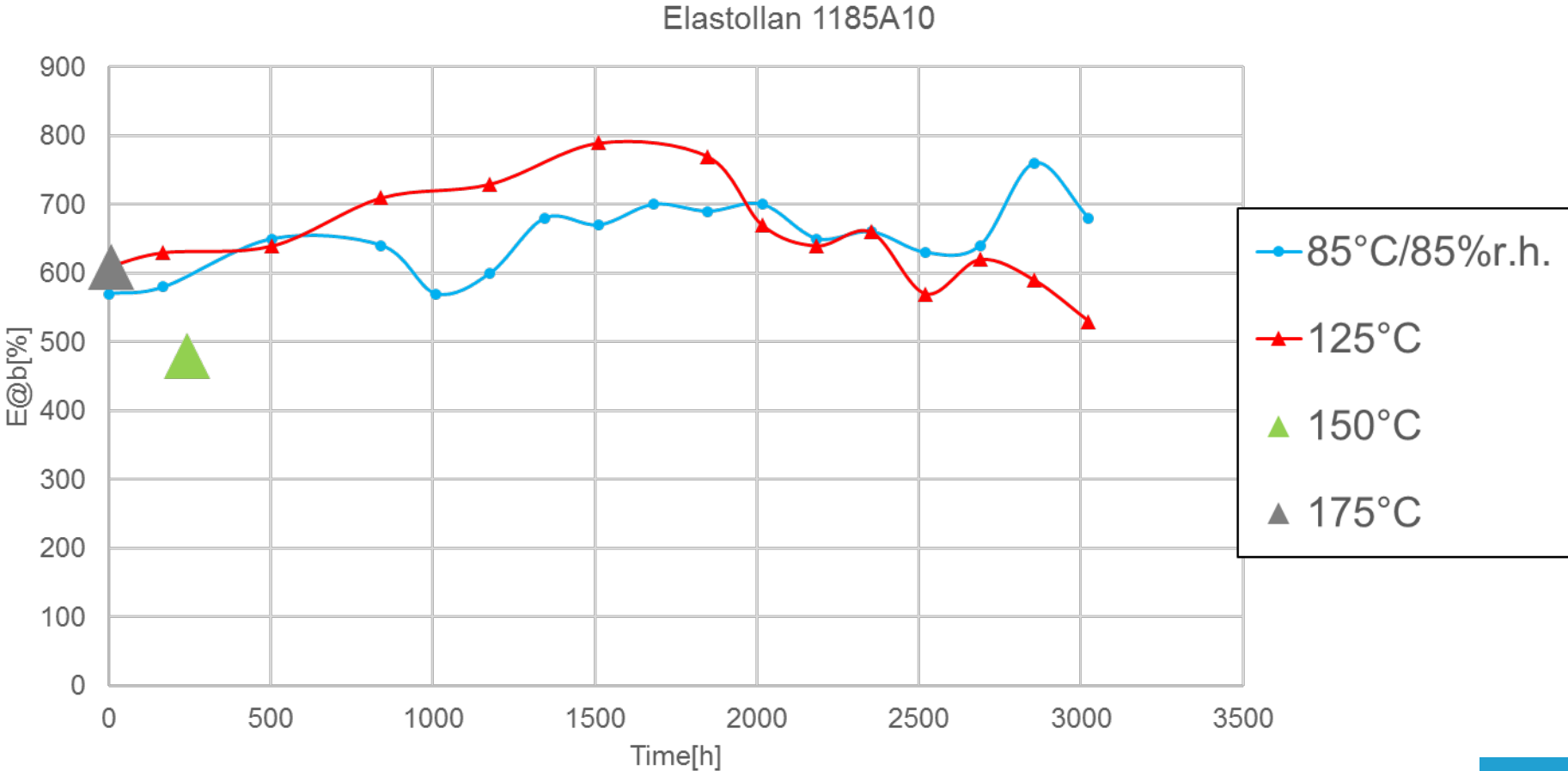
ISO6722: Damp heat at 85°C @85% r.h. for 1000h
LV112: Damp heat at 85°C @85% r.h. for 3000h



ISO6722 Pass/Fail testing based on Mandrel Bend Test of finished cable.

BASF lab scale testing based on retaining at least 100% of elongation of break on extruded test samples

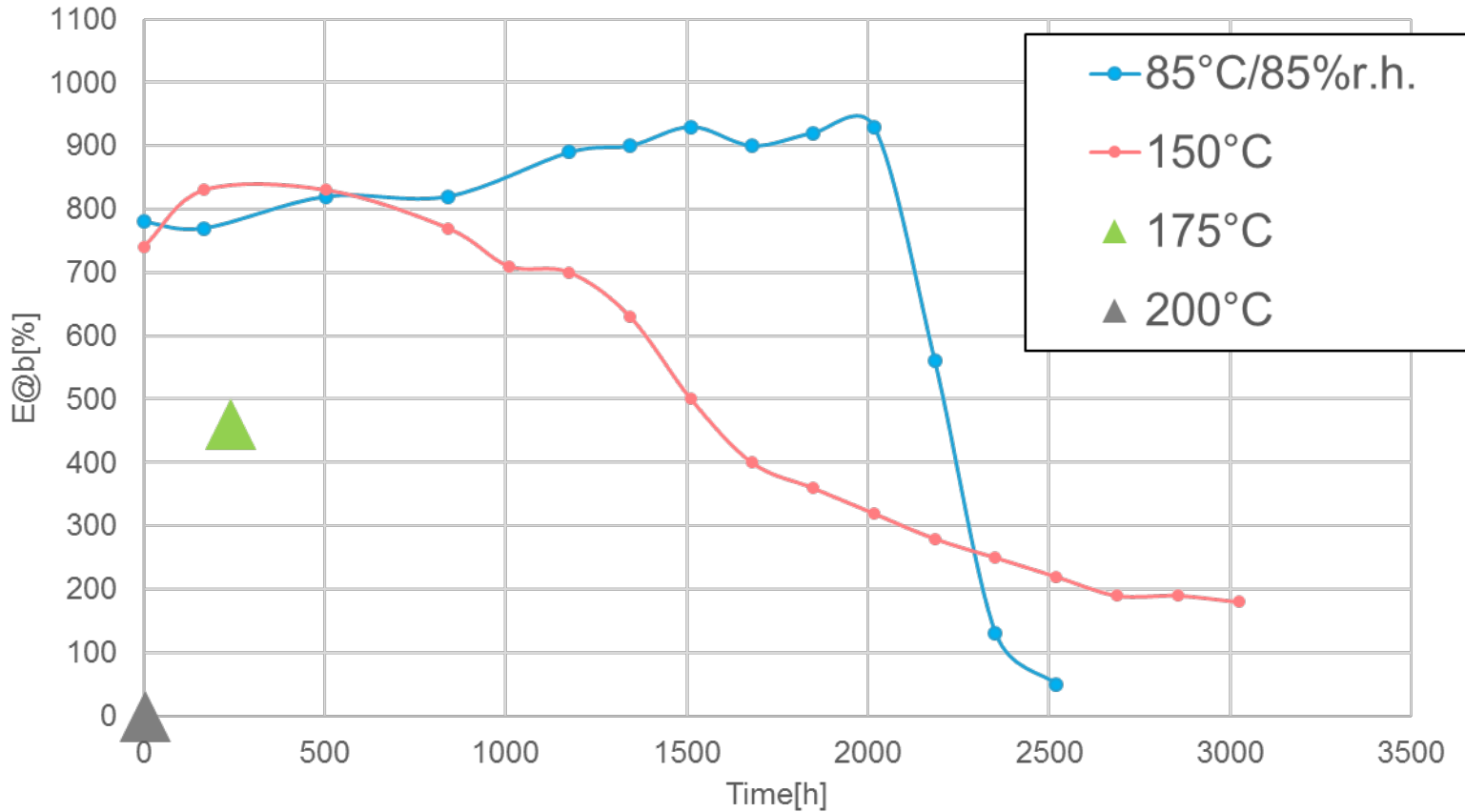
Elastollan® 1185A10 - Class C



Maintaining the Elongation at Break (E@b) of at least 100% is the objective

Elastollan[®] 785A10HPM - Class D

Elastollan 785A10HPM



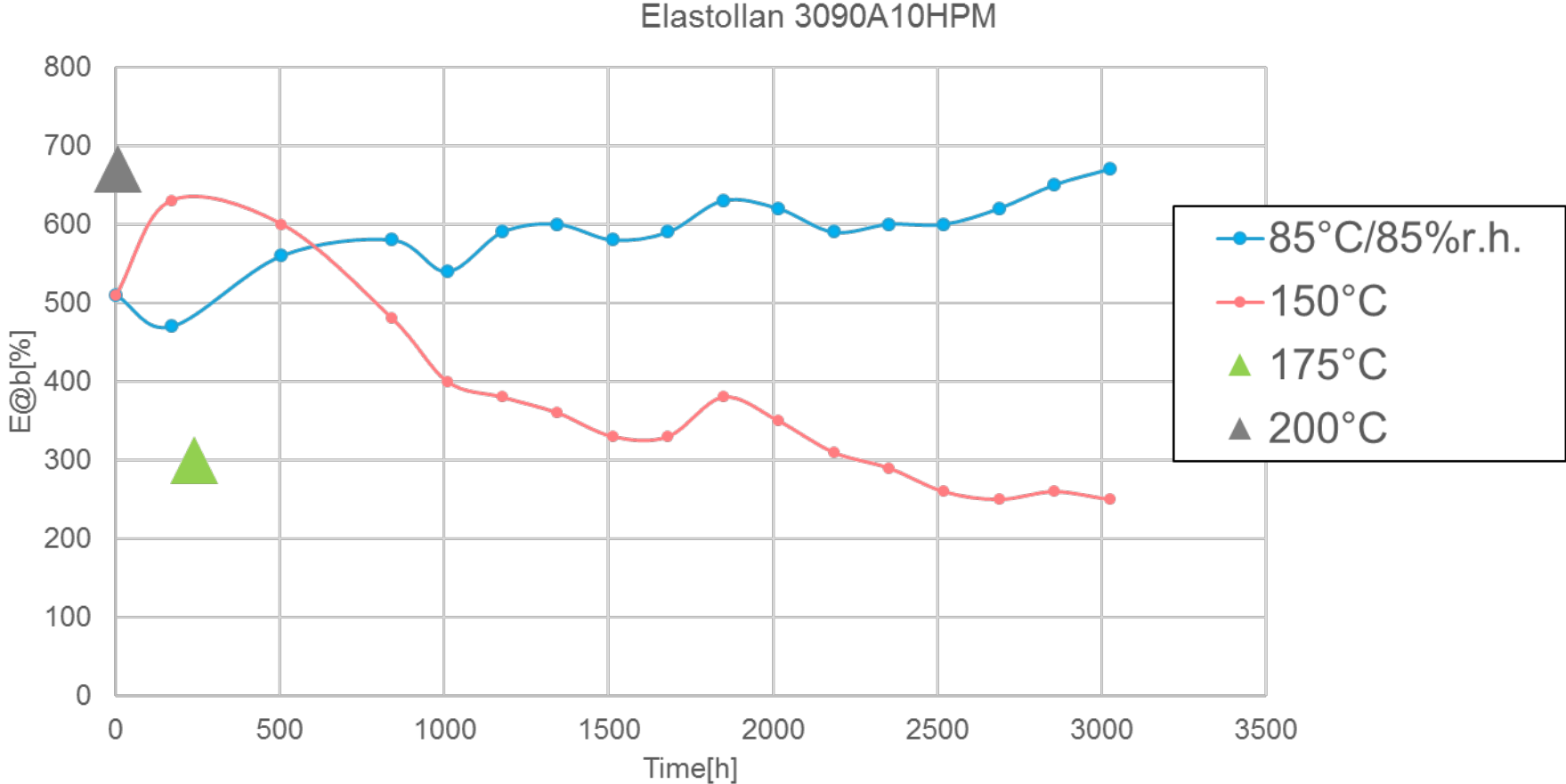
Customer recently qualified 2 cable designs to ISO 6722 Class D using this material.

Depends on cable design

3,000 h can be achieved depending on wall thickness

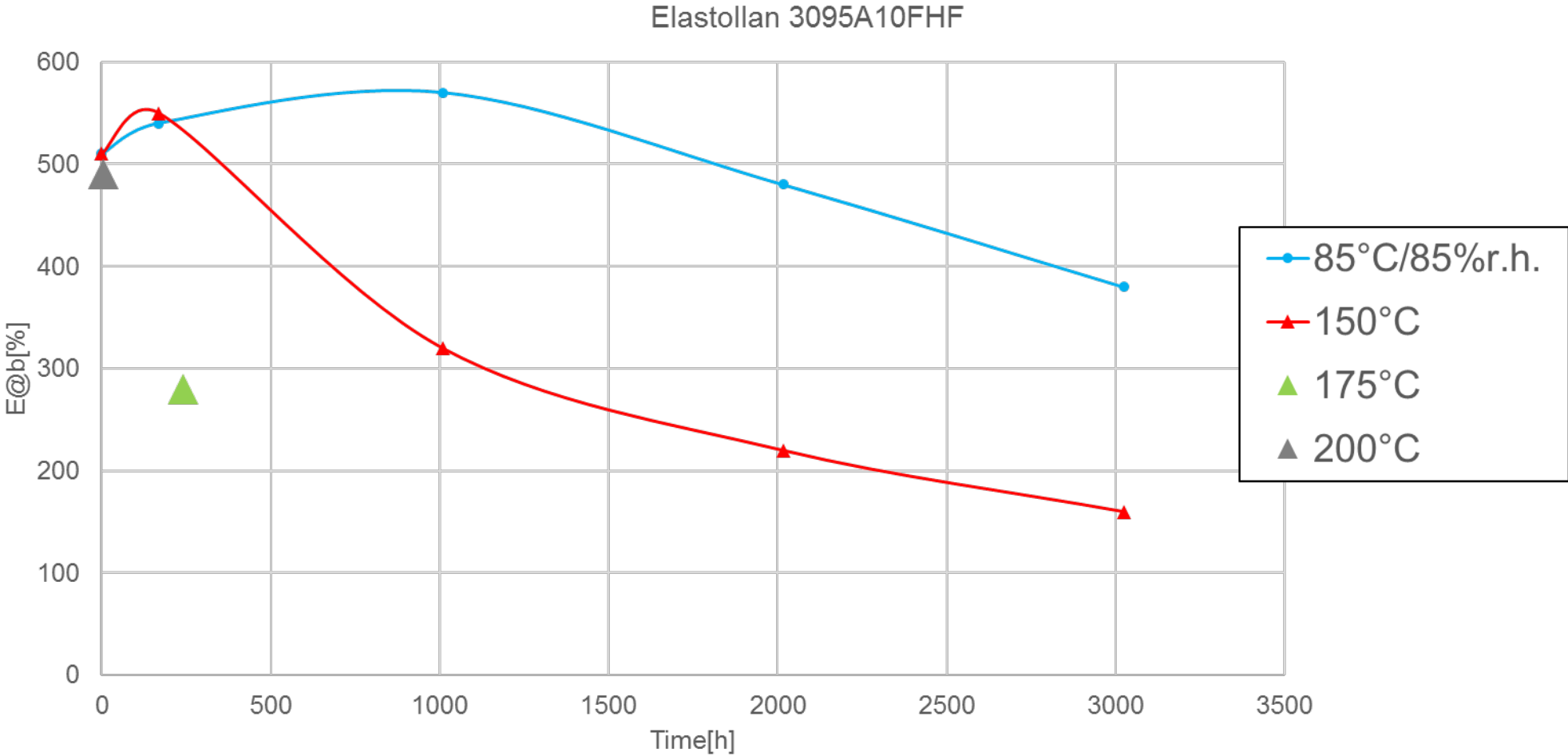
Maintaining the Elongation at Break (E@b) of at least 100% is the objective

Elastollan® 3090A10HPM – Class D



Maintaining the Elongation at Break (E@b) of at least 100% is the objective

Elastollan[®] 3095A10FHF – Class D



Maintaining the Elongation at Break (E@b) of at least 100% is the objective

Summary Slide

Elastollan® TPU for W&C Jacketing

■ Top Selling FR Grades

1185A10FHF	1190A10FHF	1191A10FHF
1192A10FHF	1190A10FHFU	1185A10HFFR

■ New Low Smoke, Halogen Free FR Grades

1192A10FR	3093A10HFFR	1192A11FHF	1192A10FHF
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■ Grades for High Temperature (125°C and 150°C)

1185A10	785A10HPM	1185A10FHF
1188A10FHF	3090A10HPM*	

■ Top Selling Standard Grades

1185A10	1185A10M	1195A10
1185A12W	1154D10	1185A10W

KEY:
 FHF = Halogen Free
 FHFU = Halogen Free, UV Stabilized
 HFFR = Low Smoke & Halogen Free
 HPM = High Performance Modified
 M = Matte Finish
 W = Plasticized
 * = this product is not yet commercial





We create chemistry