

# XIRAN® Heatboosters

## High Heat ABS

Polyscope offers a broad portfolio of styrene maleic anhydride (SMA) copolymers, compounds, aqueous solutions and styrene maleic anhydride N-phenylmaleimide (SMANPMI) terpolymers.

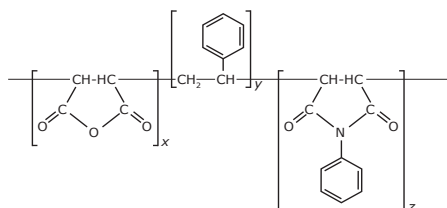
Our XIRAN® Heatboosters offers a solution for a wide range of engineering plastics such as ABS, PMMA, PLA and PVC. Increased thermal resistance offers solutions in processing temperatures and opens up windows in applications areas where higher temperature resistance is required. These neat resins are available under the brand names XIRAN® SZ and XIRAN® IZ.

### XIRAN® heat performance efficiency in ABS

High heat performance ( $T_g$ , Vicat and HDT) shows a linear increase with the amount of XIRAN® in the final ABS compound. The XIRAN® IZ product range is especially designed to offer optimized solutions in ABS blends.

### Influence of XIRAN® on flow properties in ABS

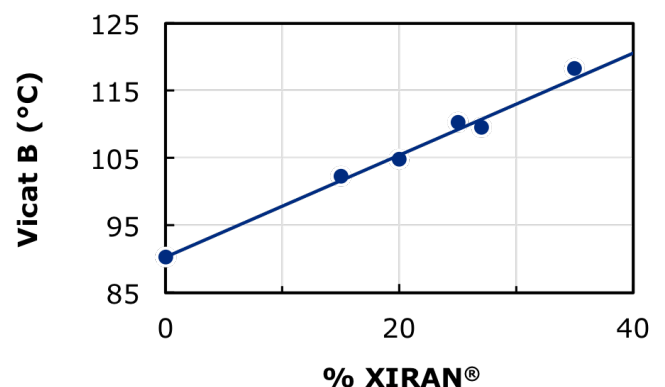
In ABS compounds, the melt index increases with the addition of XIRAN® resulting in improved flow and processing. The improved flow properties offer opportunities for complex structures in designing moulds.



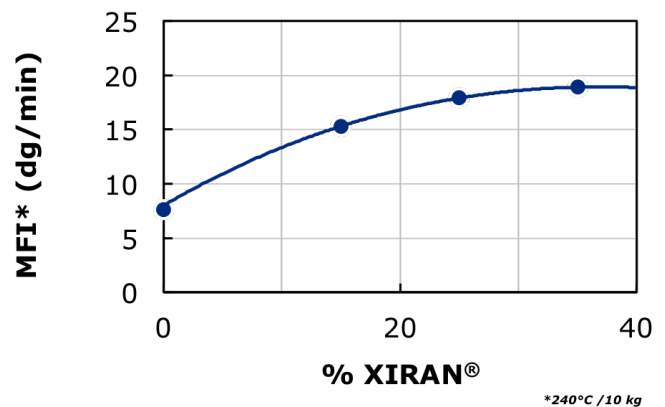
### XIRAN® IZ1018M for High Heat ABS

		<b>IZ1018M</b>
maleic anhydride (x)	mol %	10
N-phenylmaleimide (z)	mol %	18
molecular mass	kg/mol	145
glass transition temperature	°C	175
MFR at 240 °C and 10 kg	dg/min	12

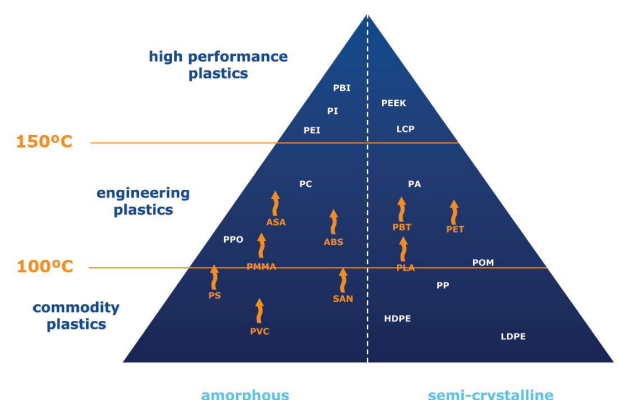
### Heatboosting efficiency XIRAN® in ABS



### Flow behavior XIRAN®



### Heatboosting opportunities with XIRAN®



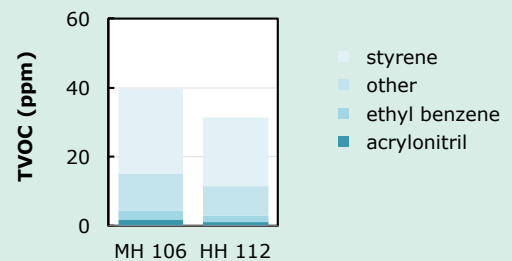
**Support in product development XIRAN® based ABS formulations.**

Polyscope offers support towards developing your high heat ABS compounds. Our people can support you with developing compounds for your end markets in high heat ABS. Typical market standards are medium heat ABS with VICAT B of 106°C and high heat ABS with VICAT B of 112°C. The table on the right shows formulations, which are made, based on ABS with 27% acrylonitrile (AN). The AN content is very critical in compound development, our team is more than happy to support your developments.

**Volatile levels with XIRAN® formulations**

Current market trends show that the reduction of volatiles is very critical. Polyscope's high heat modifiers are focused on providing materials with very low volatiles to fit markets such as Automotive. The production with our additives shows very low volatiles in VDA 277 testing procedures.

		<b>MH106</b>	<b>HH112</b>
High Impact ABS	mol %	81	72
IZ1018M	mol %	19	28
VICAT B	°C	106	112
MFR (240 °C/10 kg)	dg/min	24	32
Charpy notched (23°C)	kJ/m <sup>2</sup>	15	10



**Benefits for XIRAN® based high heat compounds**

- improved heat resistance:  $T_g$ , Vicat and HDT
- minimal ppm levels of residual volatiles and oligomers
- reduced odor
- improved rigidity and strength of compounds
- better dimensional precision, low shrinkage and CLTE
- improved adhesion for paint, foam and glue
- improved metallization, plating and sputtering
- increased flow

**Recommended Processing conditions**

	<b>screw</b>	<b>purgig materials</b>	<b>pre-drying time</b>	<b>barrel temperature</b>	<b>die temperature</b>
<b>XIRAN® IZ1018M</b>	twin screw, mild screw configuration and vacuum degassing	SAN-GF ABS-GF	3 hours	240°C	260°C

