

Stanyl® Diablo  
Akulon® Diablo

# The new standard in high temperature components

As engine designers are challenged to create smaller, lighter, more powerful systems, DSM is innovating the materials to make it possible. DSM's Diablo heat resistant technology is making Stanyl PA46 and Akulon PA66 the choice of the world's leading car brands.

**Let's talk about creating tomorrow's engines today.**

Best in class thermal stability

High stiffness while exposed  
to continuous use  
temperatures up to 230°C

New benchmark  
for HDT of 267°C

Proven over 3000 hours

Best in class weldability



Ducts & Resonators



Air Intake Manifolds



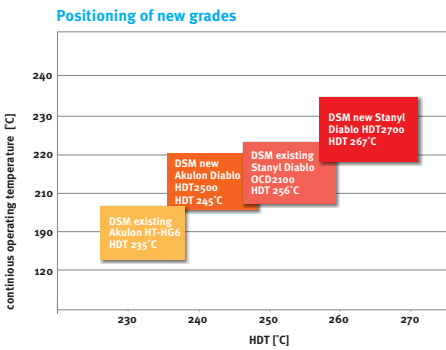
Charge Air Cooler



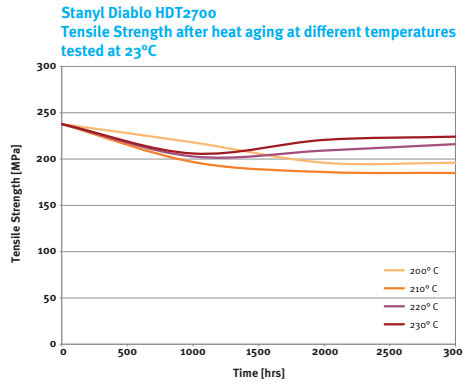
# The new heat standard

In the quest for maximum efficiency, engines are getting hotter. With the Diablo technology, invented by DSM, DSM raises the performance benchmark for temperature resistant polyamides. So you don't need to compromise when designing next generation engines.

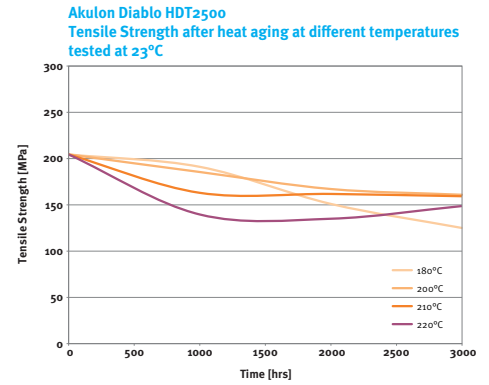
- Improved heat aging
- Improved HDT
- Improved EGR resistance



The Heat Distortion Temperature (HDT) gives a good impression of the peak temperature resistance under a certain load. We define the HDT as the temperature at which a test bar gets deformed to a given extent at a given load; which in turn is related to a certain level of stiffness at the elevated temperature. The HDT values for the new Stanyl Diablo HDT2700 and Akulon Diablo HDT2500 are amongst the highest of all engineering plastics for air management applications.



With the new Stanyl Diablo HDT2700 you can design high heat resistant components for air management systems. This new grade combines the highest HDT with outstanding long term heat aging performance. Our latest Diablo grades give you improved resistance to chemicals and gases in EGR (exhaust gas recirculation) systems and excellent processing properties.

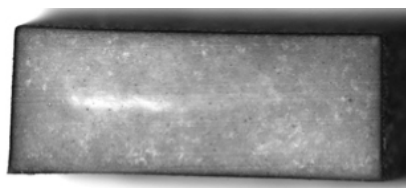


The new Akulon Diablo HDT2500 has improved resistance to chemicals and gases in EGR (exhaust gas recirculation) systems. The new Akulon Diablo, with a long term heat aging performance up to 220°C, is a clear improvement in heat aging and HDT compared to our existing grade.

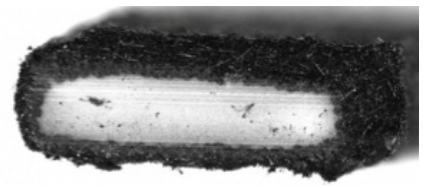
# Diablo outperforms competition

Our bright scientists have raised the thermal performance of Stanyl and Akulon to the max to offer better heat resistance. This unique technology interferes with the heat degradation mechanism, making the Diablo technology a stand-out performer for heat performance.

**Stanyl Diablo**



**PPA**



Cross section of tensile bar  
Test of Stanyl Diablo and PPA after 3000 hours at 210°C.

# For which parts in the Hot Zone can you use Stanyl and Akulon Diablo?

Take advantage of our in-depth application expertise in both the design and manufacturing stages, including design optimization for Computer Aided Engineering and temperature profile predictions and identification of hot spots.



## Charge Air Cooler

Fatigue resistance (to help withstand the pressure variations), and the highest sealing integrity make Stanyl the choice for the new generation of hot and cold side end caps - up to 260°C. Akulon Diablo provides less extreme heat resistance with the same durability.



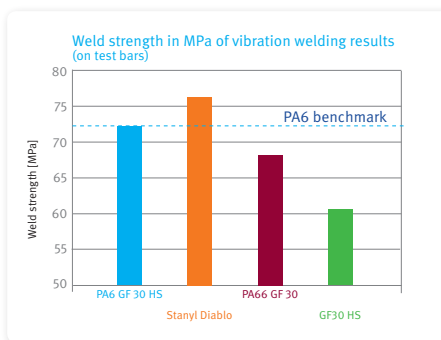
## Ducts & Resonators

Almost half the weight of metal, and 10% lighter than PPS, both Stanyl Diablo and Akulon offer benefits over all alternatives. Both Stanyl and Akulon offer excellent weldability for injection molded ducts, for hot gas vibration and mirror welding.

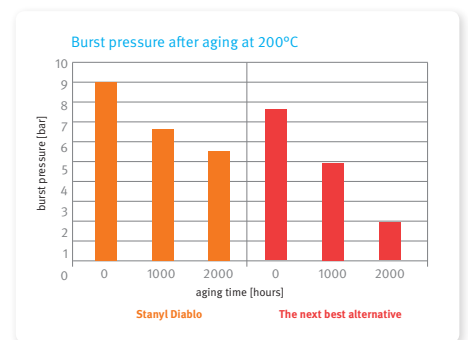


## Air Intake Manifolds

Reliability under both heat and pressure, even with thin wall designs, are characteristics of Stanyl and Akulon Diablo. Expect improved burst pressure, good weldability and weld line strength, even after aging.



Stanyl and Akulon offer excellent weldability for injection molded ducts.



Stanyl Diablo performance after 2000 h is 189% higher than performance of the next best alternatives

## Welcome in 'The Hot Zone'

Want to explore some of your ideas or challenges? Let's organise a 'Hot Zone' session where you can pick the brains of the Diablo experts. Contact your local DSM office.

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DSM – Bright Science. Brighter Living.™

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