

# Bright Science means developing best-in-class heat performance

DSM launches Stanyl® Diablo OCD 2305 BM, the first high temperature polyamide for blow-molded ducts that can handle continuous use temperatures over 220°C.

As the inventor of Diablo technology, DSM adds Stanyl® Diablo OCD 2305 BM as the latest addition to its portfolio of high-temperature products. This material is the first high-temperature polyamide 46 (PA46) on the market designed for standard high temperature blow molding machines. Stanyl Diablo offers a significant cost benefit compared to metal and PPS due to its lower weight and scrap rate. Machines currently using PPS can easily be converted to Stanyl Diablo without any additional investment.



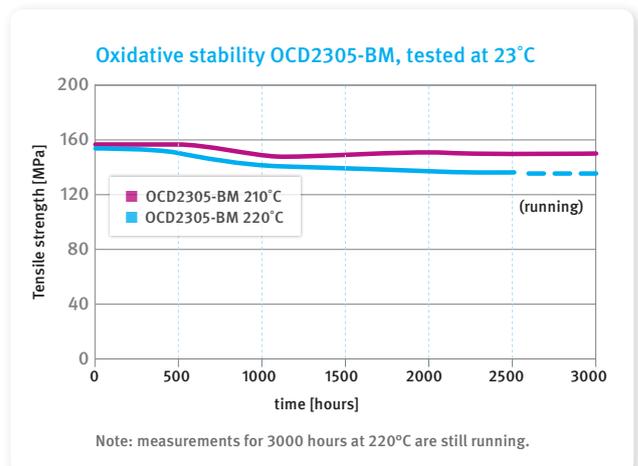
The material was developed to answer the needs of the automotive market, where new EU legislation has set stringent emission reduction targets for 2015. This has led to a trend in smaller vehicles with downsized engines. Creating these smaller engines requires new part designs. For air ducts, neither metal nor injection molding offer the design flexibility needed to fit complex under-the-hood

geometries. It's time for the next generation of hot charge air ducts created using blow molding techniques, the most cost-effective way to produce these parts.

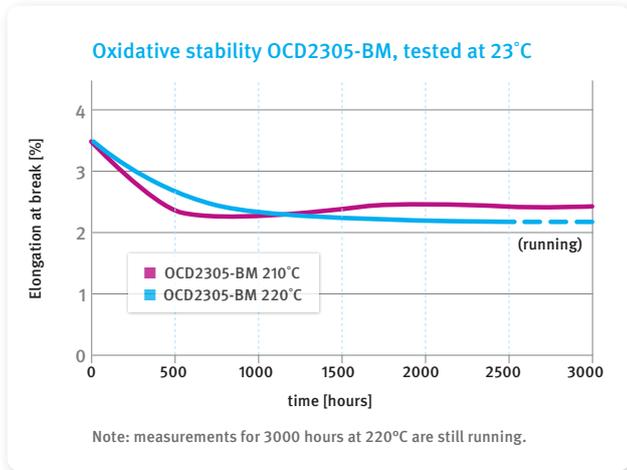
## Stanyl BM: Next generation performance in a blow molding grade

Stanyl PA46 retains stable mechanical properties at high temperatures, making it an ideal material for air duct applications. With temperature resistance up to 230°C, it suffers negligible loss in mechanical performance after 3000 hours heat aging.

## Stable tensile strength after heat aging



### Stable elongation at break after heat aging



The material’s elongation at break remains stable above 2%, even after 3000 hours of heat aging (measured on tensile bars).

Parts made from Stanyl OCD 2305 BM meet the OEM’s demanding parameters, including pressure cycle testing at 230°C and chemical resistance from blow-by and exhaust gas recirculation (EGR).

### Comparison with PPS: less weight, less scrap, more value

Stanyl PA46 BM offers clear advantages compared with PPS, resulting in a significant cost benefit:

- **Weight reduction up to 10%.** This is due to lower density (1330 g/cm<sup>3</sup> for PA46 vs. 1440 g/cm<sup>3</sup> for PPS), and better wall thickness distribution enabled by the material’s superior melt strength.
- **Exceptional handling and impact resistance.** PPS is a brittle material that easily breaks during handling and assembly. Since broken parts are only checked and identified after assembly, reducing breakage is a direct way to save on processing and assembly costs. Stanyl reduces the risk of broken parts to provide a marked reduction in scrap rate.
- **No cross-linking after machine shut down.** Stanyl PA46 BM offers easier start-up, and no additional investment in machines and tools. After longer machine stop, Stanyl PA46 BM only shows a visco-drop, while PPS cross-links
- **Noise absorption better than both PPS and metal.**

Mechanical properties	PPS GF 15	Stanyl OCD 2305 BM
Tensile strength (MPa)	120	150
Tensile Modulus (MPa)	7700	8300
Strain at break (%)	2	3.5
Flexural modulus (MPa)	7500	7800
Charpy impact strain notched (kJ/m <sup>2</sup> )	5	14
Charpy impact strain (kJ/m <sup>2</sup> )	32	60
HDTA @ 1.8 MPa	220	245
Density Kg/M <sup>3</sup>	1.44	1.33

Values for tensile strength, Charpy impact and HDTA all outperform PPS.

ETM is the first company to deliver serial ducts made out of Stanyl Diablo OCD2305 BM. ETM looked for an alternative blow molding material to produce hot charge air ducts for Volkswagen.

“ETM set out to meet the needs of its customers for both today and tomorrow,” says Klaus Klockow, General Technology Manager at ETM. “The new DSM material is clearly designed to address the challenges faced by the automotive industry. We are happy to bring to market the first blow molded ducts made in Stanyl Diablo OCD 2305 BM and approved by Volkswagen.”

## 25 years’ experience in air induction systems

DSM, the inventor of Diablo technology, has more than 25 years of experience supplying material for air induction systems. Combining our application development expertise with the extensive knowledge base of our fundamental research team, we help to determine which material properties are needed for air induction applications.

[Contact us today to learn more about DSM’s next-generation PA46 material for blow molding, designed to help you create lighter and more efficient air induction systems.](#)

### Contacts:

- Europe: Christian.Kilgus@dsm.com
- US: Dennis.Que@dsm.com
- China: Xu.Ke@dsm.com
- Japan: Daisuke.sakata@dsm.com
- South Korea: Eli.jang@dsm.com
- India: Prassana.Godbole@dsm.com

## DSM Engineering Plastics

For further information, please see:  
[www.dsm.com](http://www.dsm.com) or contact:

### Europe

Tel +31 46 47 73796  
Info-Europe.DEP@dsm.com

### Americas

Tel +1 800 333 4237  
Info-Americas.DEP@dsm.com

### Asia Pacific

Tel +86 21 6141 8188  
Info-Asia.DEP@dsm.com

©DSM 2012

All information, advice and/or samples ("information") are provided by or on behalf of DSM Engineering Plastic on an "as is" basis, without any further warranties as to the accuracy, usefulness, correctness or completeness thereof. Use or disclosure of or reliance on such information shall be for your own sole risk, account and responsibility and you will indemnify and hold DSM Engineering Plastics and its affiliates harmless from and against any and all damages or claims from third parties in respect of your receipt, use or disclosure of or reliance on the information.

The disclosure of information shall not be construed as granting you a license or any other intellectual property rights relating to such information. The obtaining of such license or rights shall be subject to separate negotiations.