



High-performance connectors

Reliability and halogen-free V-0 flame retardance for reflow soldering in ICT applications

Highly sophisticated electronics technologies such as solid state disc drives (SSDDs) in the latest generation of notebooks and optical disc drives (ODDs) such as CD, DVD and BluRay demand improved connector materials that not only withstand high-temperature reflow soldering but also provide excellent dimensional stability, toughness, and exceptional pin retention forces.

Warpage - and resulting quality issues - are a major challenge since the stiffness of most materials drops sharply at elevated temperatures during reflow. These stringent requirements span a range of connector types, including flexible printed circuit (FPC), Serial ATA/Serial Attached SCSI (SATA/SAS) memory card and battery connectors.

Stanyl® ForTii™ meets today's and tomorrow's customer requirements.

At the same time, the new regulatory requirements for electrical and electronics products, including EU RoHS and WEEE directives, favor the use of halogen-free flame-retardant thermoplastics. To meet all these needs, DSM Engineering Plastics developed Stanyl ForTii polyamide resin. This material has been developed to retain high stiffness even at elevated lead-free reflow assembly temperatures with hot spots up to 300°C, drastically reducing warpage to minimize rejects. It offers a unique balance of high melt temperature (325°C), high glass transition temperature (125°C), high stiffness and very low moisture absorption. By retaining the high performance properties of Stanyl resin while reducing moisture uptake significantly, Stanyl ForTii delivers significant reliability improvements compared to liquid crystal

polymers (LCs), and better processing compared to polythalamides (PPAs).

Other key properties are excellent electrical performance, including a comparative tracking index (CTI) of 600V (PLC 0), a record glow wire flammability index (GWFI) of 850°C down to 0.4mm and glow wire ignition temperature (GWIT) of 775°C down to 0.4mm. In fact, Stanyl ForTii is the only halogen-free polyamide in the world to receive approval by the highly recognized German VDE association according to DIN EN 60695 and 60112, meeting stringent reliability requirements of such applications as unattended appliances.

Stanyl ForTii excels in connector applications, including:

- SATA and SAS connectors for notebooks or netbooks
- FPC connectors for ODDs
- Memory card connectors

For more information, please turn page.

“For our latest halogen free, UL94-V-0 compliant SFV series we have chosen Stanyl ForTii. Its excellent thermal and mechanical properties not only help us to fulfill our customers' requirement for a flame-retardant, halogen-free solution, but it also increases robustness and reliability of our surface mount FPC connectors, making them less susceptible to potential housing cracking. FCI and DSM have been cooperating closely to develop this solution. Together we are able to support the launch of halogen-free ODDs by major OEMs in the electronics industry.”

Motomu Kajira

Ass. Manager, Product Engineering,
FCI Japan

For example, T-CONN, a major local connector manufacturer in Taiwan, selected Stanyl ForTii as the halogen-free housing material for its wide range of notebook battery connectors and is expanding usage to its FPC product line. Key performance properties are weld line strength, toughness and easy processing.

Also, FCI, a leading supplier of interconnect products, has approved Stanyl ForTii for its line of FPC connectors for ODDs and is currently expanding usage to various other connectors and sockets.

Taisol Electronics, the second-largest Taiwanese memory card manufacturer, chose halogen-free V-O Stanyl ForTii for its 5-in-1 memory card socket. The resin reduced warpage by 50 percent in comparison to the previous material. Stanyl ForTii provides high coplanarity and little change after reflow to reduce inspection and rework costs significantly.

As the computer industry transitions to halogen-free plastics, Stanyl ForTii makes it easy for customers to replace traditional connector materials while delivering significant performance and quality improvements.

Eco+ solution

Stanyl ForTii offers a halogen-free alternative for ICT that enables the latest interface technology with lower power consumption and provides higher efficiency, optimised performance and reduced environmental impact, including a lower carbon footprint vs. existing solutions and full compatibility with lead-free reflow soldering.

DSM Engineering Plastics

For further information, please see:
www.dsmep.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 2011

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.

11.002.