

FLAME DEFENSE SERIES

FDVWI

Typical Physical Properties

Color	white to off-white
Specific Gravity	3.23
Median Particle Size (microns)	2-3
99% Less Than (microns)	25
Decomposition Temp.	>550°F (>290°C)

To demonstrate the basic efficacy of the product, a typical polyethylene recipe was constructed, compounded, press-molded and finally cross-linked using electron beam irradiation for convenience. After confirming cross-link density, UL94 sample bars were cut (0.03 inches thick) and laminated to a thin copper sheet (0.02 inches thick) to provide the heat sink effect and structural stability similar to that encountered in an extruded wire.

The laminated UL94 samples were then tested using the basic UL94 protocol but adapted to simulate the VWI test. Specifically, the flame was applied at a 20 degree from the vertical angle for 15 seconds for a total of 5 applications. The recipes evaluated and results obtained are shown below.

FDVWI is specifically optimized for the cross-linked low voltage XLPE and EPDM wire & cable market. Within a segment of this market are wires and cables designed to meet the demanding VWI flame test requirement. To achieve this performance, it is common to formulate with brominated flame retardants and Antimony Trioxide synergists.

Leveraging The R.J. Marshall's long history with Antimony Trioxide replacement products for PVC applications, a research program was undertaken to design a specific product for the VWI application and similar systems where brominated flame retardants are used. FDVWI is the result of those efforts.

Formulation Ingredient	Control ATO	FDVWI
XLPE	59	59
SAYTEX 8010	26.7	26.7
Antioxidant	0.5	0.5
Antimony Trioxide Synergist	13.8	4.6
FDVWI	0	9.2
Afterflame time 1 (s)	0	0
Afterflame time 2 (s)	0	0
Afterflame time 3 (s)	0	0
Afterflame time 4 (s)	0	1
Afterflame time 5 (s)	0	3
Cotton Ignited?	No	No

Note: Images taken after fifth flame application.

For further guidance it is recommended that customers contact matsolutions@rjmarshall.com to discuss their specific recipes.

HEALTH AND SAFETY: Refer to the Safety Data Sheet

PACKAGING: 50 lb plastic bags, pallet weight 2500 lbs.

February 2021

Terms and Conditions of Sale: All statements, technical information and recommendations are based on tests we believe to be reliable, the accuracy or completeness is not guaranteed, and the following is made in place of all warranties, expressed or implied. Our only obligation is to replace product proved to be defective. We shall not be liable for any injury, loss or damage, direct or indirect, from using or not being able to use the product. Before using, customer must determine the suitability of the product for the intended use and customer assumes the responsibility. This statement may not be changed except by an agreement signed by an officer of The R.J. Marshall Company.