

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 crosslinked using electron beam irradiation for convenience. After confirming crosslink 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 result obtained are shown here.

FDVWI is specifically optimized for the crosslinked low voltage XLPE and EPDM wire & cable market. A segment of products in this application are flame retarded 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.

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