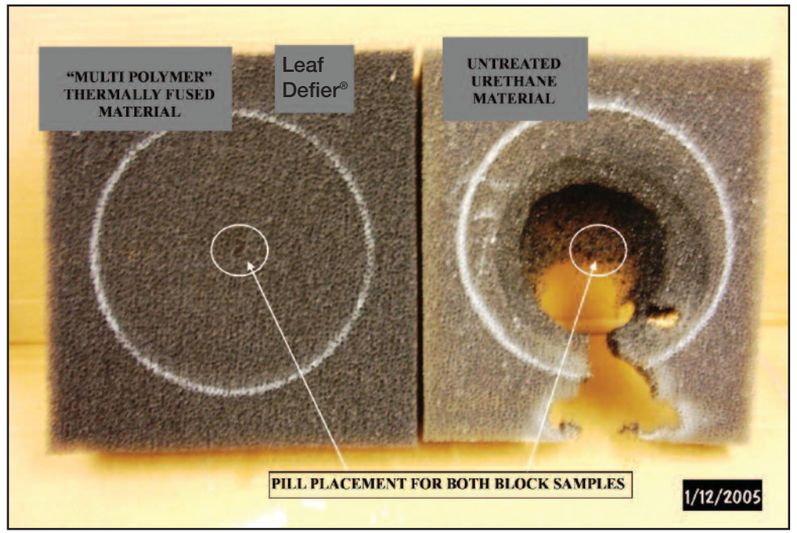
## FIRE TEST CHARACTERISTICS

In addition to the weathering tests, this "multi polymer" thermally fused material was subjected to both UL-94 H testing protocol and the standard 84 Methenamine Pill Test in our laboratory at Leaf Defier®. The fused material was successful in passing both tests. The photographs below show the startling results of the more severe Methenamine Pill Test, where the test samples were cut from the same block of foam and one 10 X 10 X 3.25 inch sample was treated with the thermally fused post cure protection and the other sample was left untreated.

As noted in the photographs, the untreated sample burned completely through the foam block, while the thermally fused material was essentially unaffected by the ignition of the Methenamine Pill. This kind of performance certainly sets the "multi polymer" thermally fused material at a very high value added level versus the other cellular gutter protection systems currently available to the industry.

In the pill test Lily tablets (# 1588) were used to test two samples that were of equal volume. The thermally fused material after a one-minute burn time showed a 1cm depression at the pill contact site with an outside diameter of 2.5 cm.

The uncoated "raw" sample was completely burned through the entire block (8 cm thick) in less than 30 seconds. The burn radius was in excess of 16 cm on the surface of the sample. The Methenamine Pill has a flash point temperature of 250 degrees Centigrade or 482 degrees Fahrenheit, which would substantially exceed any temperature that would come in contact with the thermally fused gutter protection surface from chimney embers or wood burning stove exhaust. In short, the fused polymer material provides a substantial level of protection for almost any gutter system.




Leaf Defier®
Gutter Protection System


A Division of Monzi Inc., 2150 Highway 35, Suite 250, Sea Girt, NJ 08750
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# Leaf Defier® Gutter Protection System

## Gutter Protection Product Innovation

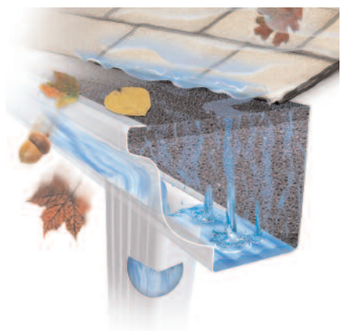
**Independent laboratory tests unequivocally define Leaf Defier® "multi polymer" thermally fused material as superior to chemically coated and untreated flexible urethane filter media used for gutter protection systems**

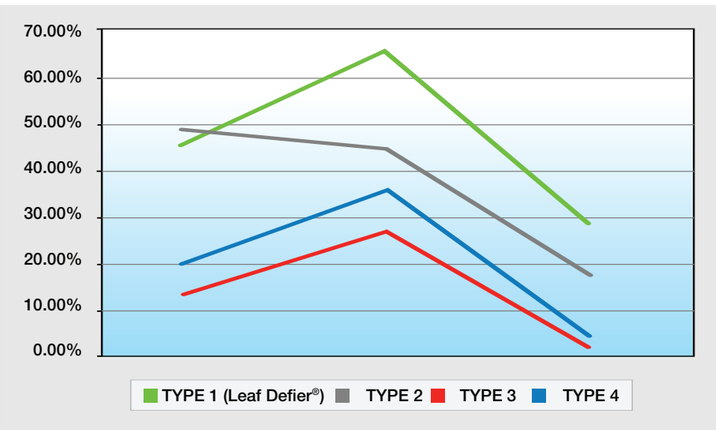
## COMPRESSION FORCE CHARACTERISTICS

Both accelerated weathering tests and mechanical property evaluations have confirmed the superb quality and product integrity of the "multi-polymer" thermally fused gutter filtration system supplied by Leaf Defier® This patent pending/proprietary technology has been tested by an independent quality assurance laboratory and the results detail the value added nature of this innovative product for the gutter protection industry.

After testing at 1000 hours and 4500 hours (equivalent to 5 years exposure) of Xenon light chamber exposure, the "multi-Polymer" fusion coated material (TYPE 1 [Leaf Defier®]) retained more than 60 % of its original strength and integrity. The "chemically coated" product (TYPE 2) tested in the same chamber in side by side comparison tests, retained only 35 % of its structural integrity. The "untreated" (TYPE 3 & 4) urethane filtration media (also tested in side by side comparison) retained only 18 % and 23 % of their inherent strength from the first stress point of 1000 hours.

| | 1000 HRS | 2200 HRS | 4500 HRS |
|---|---|---|---|
| TYPE 1 (Leaf Defier®) | 46.48 % | 65.52% | 28.44% |
| TYPE 2 | 49.29% | 44.97% | 17.65% |
| TYPE 3 | 13.71% | 27.73% | 2.58% |
| TYPE 4 | 19.97% | 35.50% | 4.60% |






In short the force needed to deflect the XENON exposed "multi-polymer" fusion coated product (TYPE 1 [Leaf Defier®]) by 50 % after 4500 hours of exposure (equivalent to five years UV exposure) was 28.44 % of the force needed to deflect the unexposed material. All other materials show significantly inferior performance at the maximum exposure time of 4500 hours.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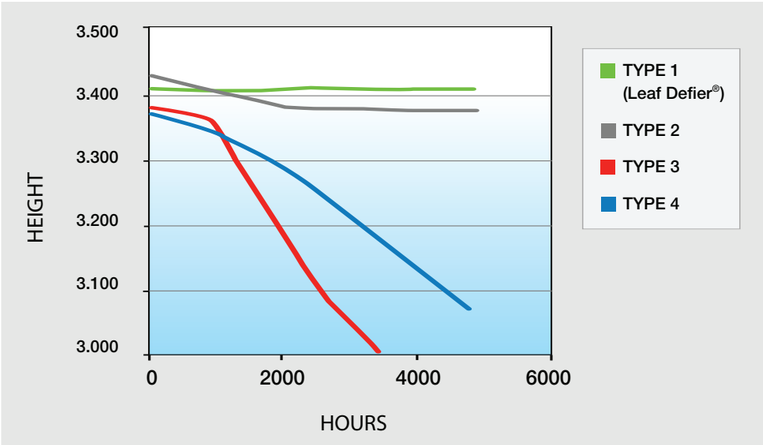
## SURFACE DEGRADATION CHARACTERISTICS

In all polymer plastics and coated materials the "surface erosion and degradation" over time is a very debilitating parameter for the polymer matrix and its ability to function properly. The Ultraviolet light from the sun and severe weathering conditions have the most pronounced effect at the surface of the polymer matrix where in fact the true protection the plastic provides is compromised. As a result the long term protection that the polymer provides is most critical at this surface where the material is exposed to the elements of nature and subject to reduced performance over time.

After the XENON arc chamber study was completed, all four materials were brushed to remove any loose or flaking polymer on the surface exposed in the weathering chamber to the UV simulated light. This is the critical surface in terms of performance, as any failure due to UV exposure and severe weather conditions will be most apparent on this Xenon exposed surface of the material. As this surface slowly degrades with exposure to the elements the inherent protection of the material becomes less effective and the product will fail to provide the long-term integrity that is required for gutter protection systems. As we can see here the sample heights before and after exposure in the weathering chamber certainly give a clearer picture of the higher value provided by the "multi-polymer" fusion coated product (TYPE 1 [Leaf Defier®]). After the materials were taken from the test chamber and brushed, the sample heights were then measured to one thousandth of an inch with the following results noted:

| SAMPLE | TYPE 1 (Leaf Defier®) | TYPE 2 | TYPE 3 | TYPE 4 |
|---|---|---|---|---|
| 0000 HRS | 3.410 | 3.423 | 3.390 | 3.385 |
| 1000 HRS | 3.408 | 3.403 | 3.355 | 3.353 |
| 2200 HRS | 3.409 | 3.387 | 3.107 | 3.265 |
| 4500 HRS | 3.407 | 3.380 | 2.760 | 3.068 |
| % LOSS | 0.09 | 1.3 | 18.6 | 9.4 |




As the above table indicates, the % loss or exposed surface degradation was minimal with the TYPE 1 (Leaf Defier®) "multi-polymer" fusion coated product available from Leaf Defier®. The surface degradation with this "multi-polymer" material is LESS THAN one tenth of 1 % as compared to significant losses in surface character with the other materials tested.

With this type of long term resistance to surface degradation and product erosion we can see why the "multi-polymer" gutter protection material from Leaf Defier® performed so well in both the UV stability/weathering and mechanical properties testing of this independent study. This patent pending/proprietary technology of Leaf Defier® has provided the gutter protection marketplace with a thermally fused composite that is a significant value added material for this industry.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TYPE 1 (Leaf Defier®)

TYPE 2

TYPE 3


TYPE 4

### TESTING PARAMETERS AND PROTOCOL

Leaf Defier® has employed an outside testing facility that specializes in cellular plastics performance testing. They exposed our **Patent Pending / Proprietary Leaf Defier® Materials** in a Xenon (IR/UV) GUV (UV) 4500 hour testing process, simulating five (5) years of all possible weather conditions including, but not limited to, ultraviolet and infrared radiation, salt/fog spray for corrosion, high/low humidity, chemical fog, fine-to-course particulate exposure, freeze/thaw and fine mist to water spray/immersion.

This accelerated laboratory exposure program uses state of the art weathering equipment Xenon (IR/UV) GUV (UV) as follows:

1. The testing procedure was an eight month process where materials were tested for physical characteristics at 0(baseline), 1000, 2200 and 4500 hours.
2. At each hour mark, product was removed and tested for, but not limited to, tensile strength, tear strength, elongation, density, compression force deflection, surface degradation etc.
3. That information is then recorded and compared to the non-exposed foam specifications in order to get a better idea of the endurance and degradation of the product over a simulated time.

This testing was done in accordance to ASTM G 26-96, ASTM 155-A testing methods common to exterior plastics for building materials.

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