



AKRON RUBBER DEVELOPMENT LABORATORY, INC.

# Physical Testing: Weathering

## Will Your Product Stand Up Against The Elements?

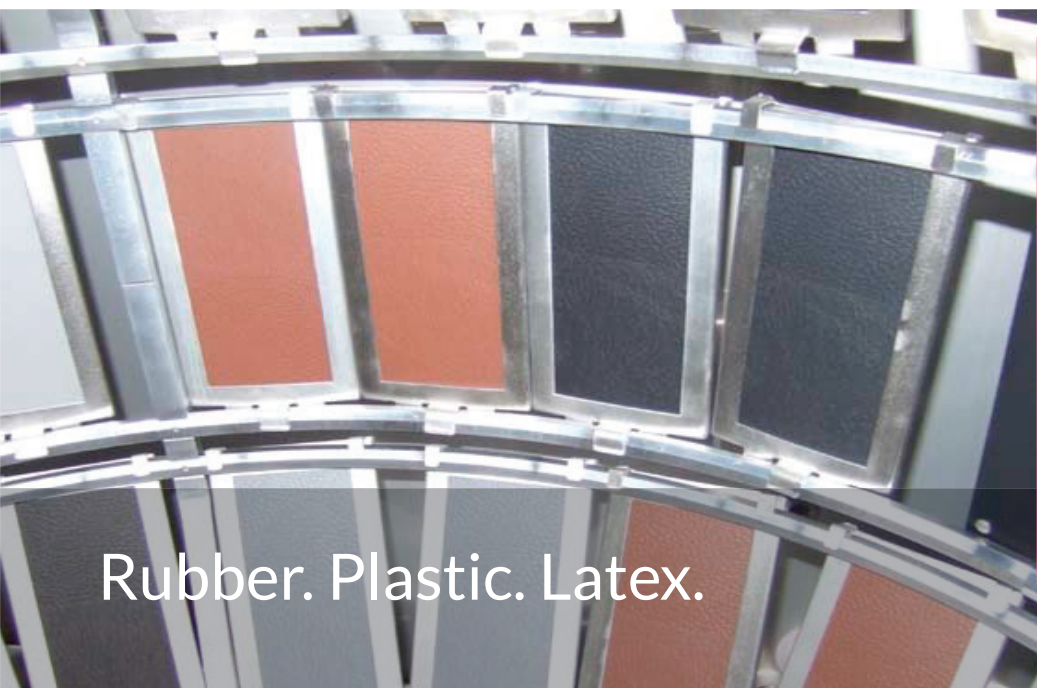
Ensure your product will outperform your customers' expectations with product and material weathering testing at ARDL.

### UV or Visible Solar Radiation Resistance by Xenon Arc Weather-Ometer

ARDL's multiple Xenon Arc Weather-Ometers are the preferred light source for testing materials that will be exposed to natural sunlight. They use a precision gas discharge lamp sealed in a quartz tube with a water lamp cooling system. Precise humidity, chamber temperature and black panel temperature controls allow the Xenon long arc, when properly filtered, to simulate UV and visible solar radiation more accurately than any other artificial light source. Typical applications include automotive components, chemicals, paints and coatings, paper, pharmaceuticals, textiles, plastics and polymers.

*Xenon Arc Test Methods Available Include But Are Not Limited To:*

ASTM D750	ASTM D1148	ASTM D2565	ASTM D4798
ASTM D6695	ASTM D7869	ASTM G26-96 (withdrawn 2000)	ASTM G151
ASSTM G155	AATCC Test Method 16	AATCC Test Method 169	Fiat 50451
Ford FLTM B0116-01	GME 60292	GMW 3414	GMW 14162
GMW 14743	Honda HES D6601	ISO 3865	ISO 4892-2
ISO 11341	ISO 105B02	ISO 105B06	ISO B 7754
JASO M346	JIS D0205	ASTM D4459	Nissan MO 135
SAE J 1885	SAE J 1960	SAE J 2412	SAE J 2527
Toyota TSM0501G	UL 1581	VW PV 1211	VW PV 1303
VW PV 3929	VW PV 3930		



Rubber. Plastic. Latex.

## Contact Us Today

Whether you need a single test method or full program of tests and consultation to perfect your product, we're here to help and can provide you with a quote that's customized to your needs.

## Contact Us Today

1 (866) 778-ARDL (2735)

[www.ardl.com](http://www.ardl.com)

# Weathering (cont.)

## Crockmeter

A Crockmeter tests the transference of color from the surface of one material to another by either wet or dry rubbing. This test can be performed before and after weathering to detect changes after aging. In addition, the Crockmeter can also perform scuffing, wet/dry abrasion, flexing, powdering, dry-cleaning and ink abrasiveness tests.

AATCC Method 8A	AATCC Method 165	ASTM F1319	EN ISO 105, Part X12	FLTM BN 107-01
ISO 105, Part D02	JIS K 6328	JIS L 0849	JIS L 1084	SAE J 861

## UV Discoloration by UV Staining

ARDL can perform several types of UV staining to check product performance.

*UV Discoloration Test Methods Available Include But Are Not Limited To:*

ASTM D 925 Method B	GM 6086M	MS-AY 522	SAE J 1037	WSB-M3G 102-B2
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## UV Resistance by QUV

ARDL has several large capacity QUV testers to accommodate different sample sizes and odd shapes - which means you don't have to wait in line. The QUV accelerated weathering tester is a cost-effective simulation of short wavelength UV exposure. This type of testing is often used for quality control applications and is especially useful for performance comparison of different types of polymers and stabilizers. The QUV offers a condensation system for moisture simulation that does not require water spray or humidity control.

QUV lamps are electrically similar to the common cool white lamps used in general lighting but are designed to produce mostly UV light rather than visible or infrared light. In order to cover a wide range of testing needs, ARDL uses several types of UV lamps dependent on the amount of UV energy emitted and the wavelength where the spectral energy falls.

*QUV Test Methods Available Include But Are Not Limited To:*

ASTM D904	ASTM D1148	ASTM D4329	ASTM D4674	ASTM D5215
ASTM G151	ASTM G154	BS 2782 Part 5	DIN 53 384	ISO 4582
ISO 4892-3	JIS D 0205	MIL-DTL-85052	SAE J 2020	

## Fog Characteristics

Fog is a procedure performed in order to determine the tendency of interior materials to produce a light scattering film on a glass surface in a controlled environment.

## Salt Fog / Salt Spray

Salt fog is an environmental testing procedure performed on products and materials to replicate conditions of an ocean exposed atmosphere.

# Weathering (cont.)

## UV Resistance by Sunshine Carbon Arc Weather-Ometer

The Carbon Arc Weathering system provides more UV exposure at wavelengths below 300 nm than natural sunlight alone. ARDL's open-flame carbon arc light source tests light fastness durability of materials and coatings utilizing three pairs of carbon rods that emit ultraviolet, visible and infrared radiation when an electric current is passed between them. The Carbon Arc utilizes temperature control with a black panel sensor and sample conditioning water.

*Carbon Arc Test Methods Available Include But Are Not Limited To:*

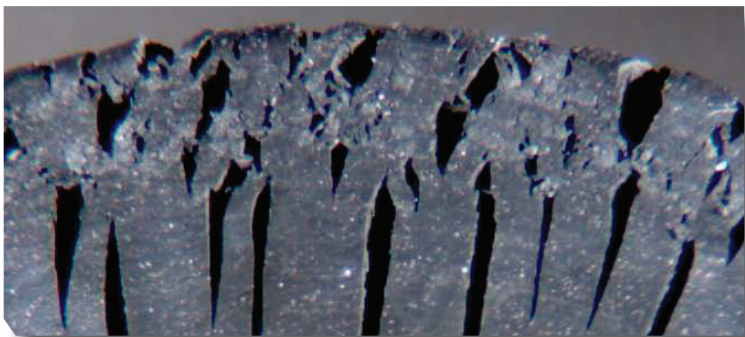
AATCC192	ASTM C1442	ASTM D750	ASTM D822
ASTM D1499	ASTM G23	ASTM G152	Federal 601, Method 7311
JIS 7753	JSM 1500G	NES 0501	NES M0135

## Ozone Resistance

ARDL has numerous chambers to test your product or material for Ozone degradation and under a variety of Ozone concentrations and temperatures.

### Dynamic Ozone Resistance

Tests for Ozone resistance under dynamic conditions.



Example of a Failed Rubber Sample After Testing in an Ozone Chamber

1.00 mm

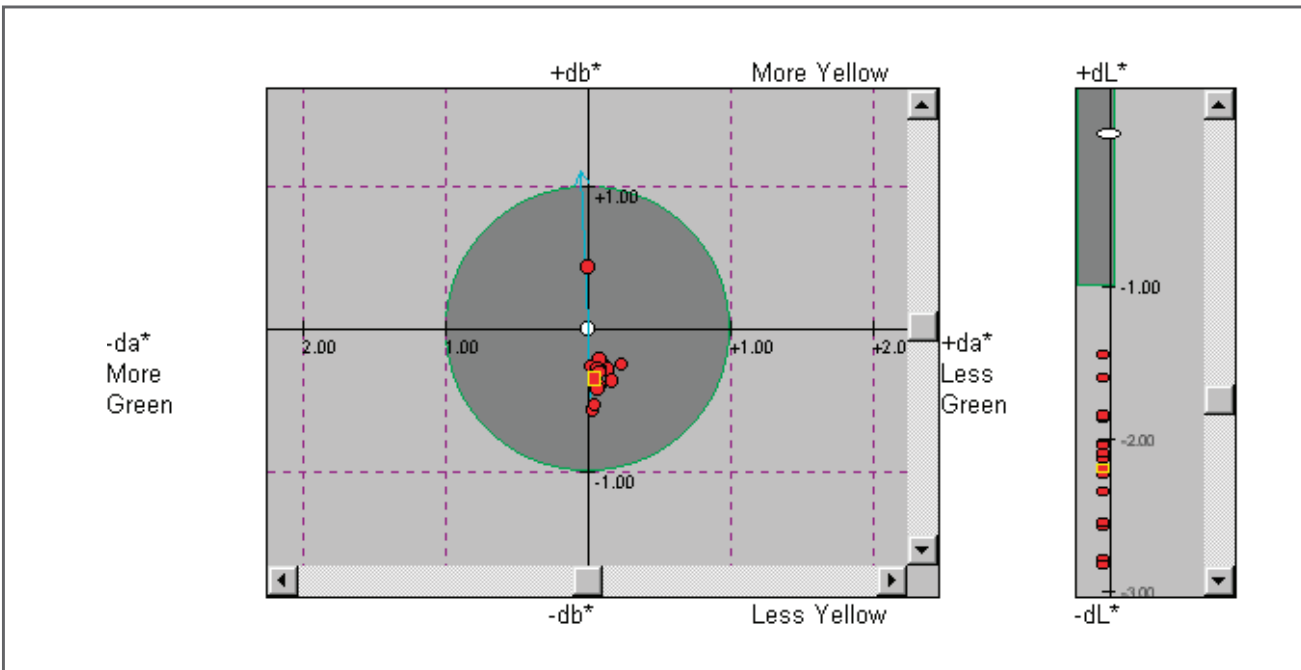
# Weathering (cont.)

Color measurement analyzes the condition of a material's surface after exposure to ultraviolet light to determine the degree of degradation or discoloration.

Color matching is a quality control method intended to check the color of end use products against federal standardized color chips.

*Color Measurement/Matching Test Methods Available Include But Are Not Limited To:*

AATCC Gray Scale For Color Change	AATCC Gray Scale For Staining	ASTM D1003
ASTM D 1925/DIN 6167	ASTM D2244	ASTM E308
ASTM E313	ASTM E1331	ASTM E1164
FED-STD-595B	ISO 105/A04	ISO 4585
SAE J 1545		



Example of Color Measurement Chart

