

# How Long Will It Take Nitrile To Biodegrade Into Biogas?\*

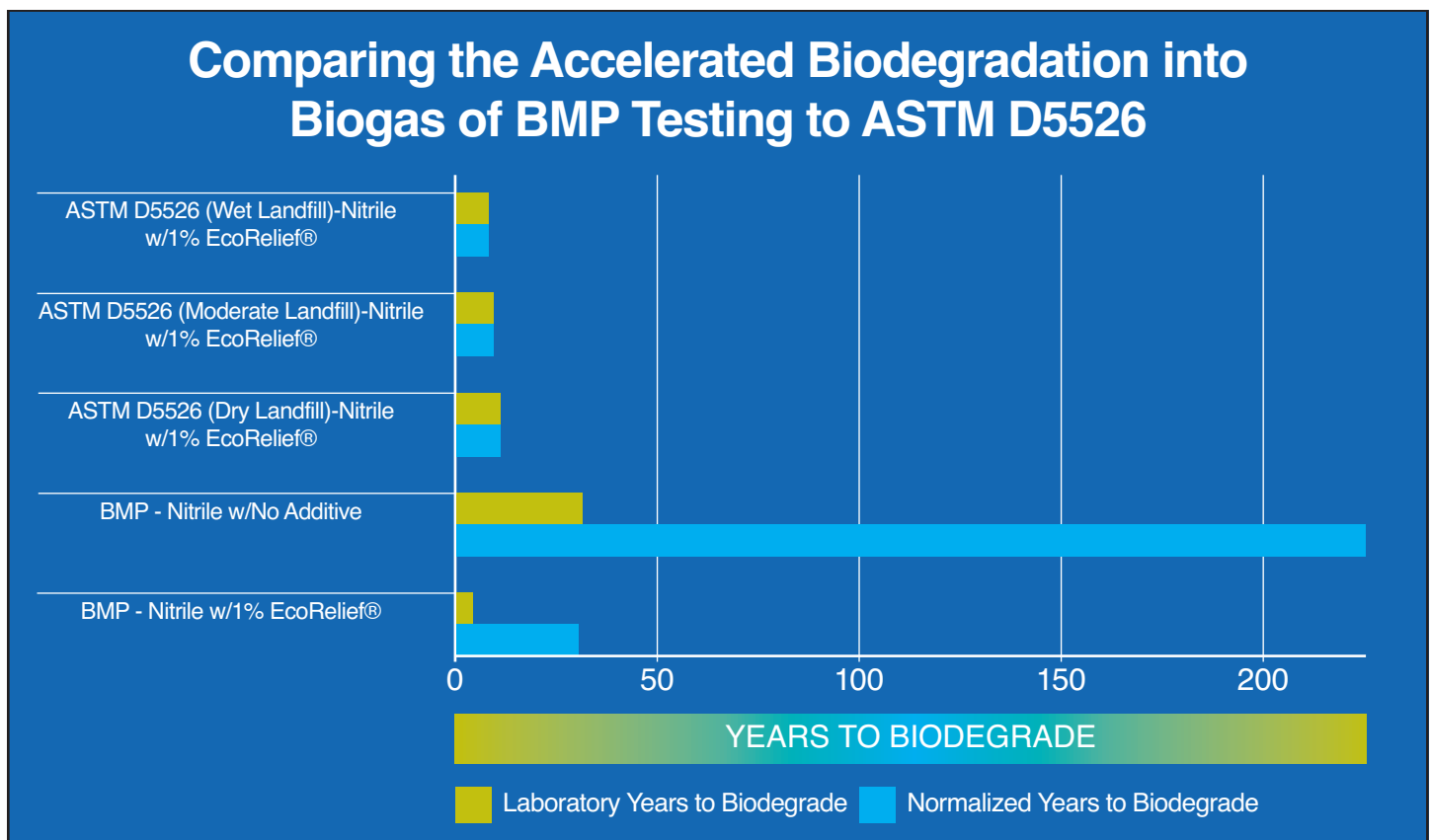


Understanding how your test results in an accelerated test such as the Bio-Methane Potential (BMP) compares to ASTM D5526 can help in estimating how long your material will take to biodegrade into biogas in a landfill. This comparison is calculated by comparing how much faster the results of a BMP are on average to the results of the ASTM D5526 test.

Conversion to biogas (biodegradation) is calculated using what is called a “rate constant”, a fancy way of saying how fast a change will take place. The rate constant is a mathematical result that can be used to identify how long it is expected to complete the transition from a polymer into biogas of a material in a similar environment. In accelerated environments the rate constant will be higher and it should be adjusted (or normalized) to reflect the expected rate in the actual landfill (when the biodegradation is not accelerated in a laboratory).

With nitrile that includes 1% EcoRelief®, the results of the BMP when normalized show an expected time frame for biodegradation into biogas of 30 years whereas the regular nitrile is expected to take over 225 years to biodegrade. The normalized rates as are nearly identical to the ASTM D5526 test results.

\*Testing conducted by third party laboratory Eden Research Laboratory. All testing done to applicable ASTM standards as listed. Copies of actual test results are available upon request.



Test and Material	Laboratory Annual Rate Constant	Normalized Annual Rate Constant	Normalized Years to Biodegrade	Laboratory Years to Biodegrade	Time Frame of Testing	Final % Biodegradation in Testing
BMP - Nitrile w/1% EcoRelief®	0.547467952	0.705305083	30.58	4.21	30	4.4
BMP - Nitrile w/No Additive	0.07321988	0.01007151	228.62	31.45	30	0.6
ASTM D5526 (Dry Landfill)-Nitrile w/1% EcoRelief®	0.20417165	0.20417165	11.28	11.28	390	19.6
ASTM D5526 (Moderate Landfill)-Nitrile w/1% EcoRelief®	0.240971344	0.240971344	9.56	9.56	390	22.7
ASTM D5526 (Wet Landfill)-Nitrile w/1% EcoRelief®	0.288148576	0.288148576	7.99	7.99	390	26.5