Outgassing

One of the concerns that some users of adhesives and coatings have is outgassing. Under conditions of heat, vacuum, or both, a plastic material can exhibit loss in weight due to gaseous emission. Outgassing data is often a requirement before electronic, aerospace, or optical companies will consider a new adhesive.

Severe outgassing could be a concern for any or all of the following reasons:

- Outgassing could be indicative of decomposition or a change in the structure of a substrate, coating, or adhesive.
- Vapor deposition on a surface which must remain clean or retain its electrical properties.
- Vapor depositions could conceivably indicate potential corrosion, plastics crazing, or other surface weakening mechanisms.
- Contamination of the environment the part is used in.

One widely accepted outgassing standard is ASTM E-595-77. This test was run on representative DYMAX products by NASA at the White Sands, New Mexico test facility. The testing was run at 125ºC (257ºF) under a 5 X 10^{-6} Torr vacuum for 24 hours.

The total weight loss (TML) and the condensable volatile (CVCM) was measured. CVCM is of particular interest to aerospace and electronic manufacturers. It might be indicative that optical parts could become fogged, electrical continuity lost, or some other effect caused by a liquid being deposited where it is not intended.

The NASA selection criterion for CVCM is 0.1% or less. Their testing indicates that our adhesives fall within the acceptable range for many applications.

Adhesive Tested	Total Weight Loss (TML) *	Volatile Condensable Material (CVCM)
602	5.66%	0.04%
628	6.11%	0.04%
181-M	2.92%	0.03%
415	3.72%	0.05%
186-M	4.69%	0.02%
984-LVF **	5.55%	0.04%
984-LVF ***	4.75%	0.03%

* Estimated to be primarily entrapped air or moisture.
** Reference: Hughes Aircraft Corp., UV-curable conformal coating material evaluation; J. Lum, 1992.
*** Testing done following post bake of 160ºF for four hours.

Lit127 04/10/2007

DYMAX Corporation
860.482.1010
info@dymax.com
www.dymax.com

DYMAX Europe GmbH
+49 (0) 611.962.7900
info_de@dymax.com
www.dymax.de

DYMAX UV Adhesives & Equipment (Shenzhen) Co Ltd
+86.755.83485759
dymaxasia@dymax.com
www.dymax.com.cn

DYMAX Asia (Hong Kong) Ltd
+852.2460.7038
dymaxasia@dymax.com
www.dymax.com.cn

DYMAX Korea LLC
82.2.784.3434
info@dymax.kr
www.dymax.co.kr