



# OUTGASSING FAQs GUIDE



As Commercial Off the Shelf (COTS) products continue to be used within Military / Aerospace, Space, Industrial, Transportation, Automotive, and Medical applications, it is important to understand how those products will respond. A low outgassing component is needed in these environments to prevent damage to sensitive electronics, lenses (optics), mirrors and windows.

## What is Outgassing?

Outgassing is the process in which a non-metallic material such as a polymer, adhesive, rubber, or potting compound / epoxy will release a gas when exposed to heat and/or a vacuum. A NASA-developed test standard, ASTM E595-77/84/90, is used to determine how much volatile content is contained in material sample; for a product to be qualified for space flight, it must pass this test standard.

## How is Outgassing Tested?

Samtec utilizes NASA outgassing data to determine if certain products, such as our high-reliability Tiger Eye™, high-speed Q Series® and rugged Edge Rate® connectors, meet these requirements. NASA uses the ASTM E595-77/84/90 test, and the steps in this test include:

- Exposure of the parts to 25°C at a 50% Relative Humidity for 24 hours
- Products are then weighed
- Exposure in a chamber at 125°C for 24 hours at a vacuum no less than  $5 \times 10^{-5}$  torr
  - Chamber contains a cooling collector plate at 25°C to collect gas condensate
- Products are then weighed again with the collector plate

The weight of the sample is taken before and after the experiment and the materials are considered to have passed if the total mass lost (TML) and the collected volatile condensable materials (CVCM) are below 1.0% and 0.10% respectively. NASA outgassing data can be found at [outgassing.nasa.gov](http://outgassing.nasa.gov).



Micro Rugged Connectors & Cables • High-Speed Mezzanine • High Density Arrays • Micro Pitch Connectors • Micro Power Discrete Wire & IDC • High-Speed Hermaphroditic Strips • High-Speed Edge Card Sockets

# OUTGASSING TEST RESULTS

Following is current outgassing test data. For additional information concerning data for a specific Samtec product, or to inquire about testing for material not currently listed, please contact [PEC@samtec.com](mailto:PEC@samtec.com).

Material	TML (%)	CVCM (%)
Vectra E130i*	0.04	0.02
Vectra S471	0.05	0.01
Vectra S135	0.04	0.02
Vectra E488ID	0.06	0.01
Vectra V143LC	0.06	0.01
Vectra S475	0.04	0.01
Vectra E135i	0.07	0.01
Sumika Super E6007 LHF MR BZ	0.04	0.01
Valox 420SEO Black*	0.26	0.03
Zenite ZE55201	0.05	0.01
Zenite 5145L	0.08	0.01
Zenite 6130 LX*	0.07	0.01

\* Test data for Vectra E130i, Zenite 6130 LX and Valox 420SEO Black provided by NASA; visit [outgassing.nasa.gov](http://outgassing.nasa.gov) for details.

## LOW OUTGASSING SERIES

Outgassing test data is available for these Samtec products. Please contact [PEC@samtec.com](mailto:PEC@samtec.com) for information.

CLP	IPL1	STMM
ERF8	LPAM	TEM
ERM8	LSHM	TSH
FFMD	QRM8	UCC8
FFSD	SEAF8	UEC5
HLE	SEAM8	UMPS
HSEC1	SSM	UMPT
HSEC8	TSM	ZF5S

