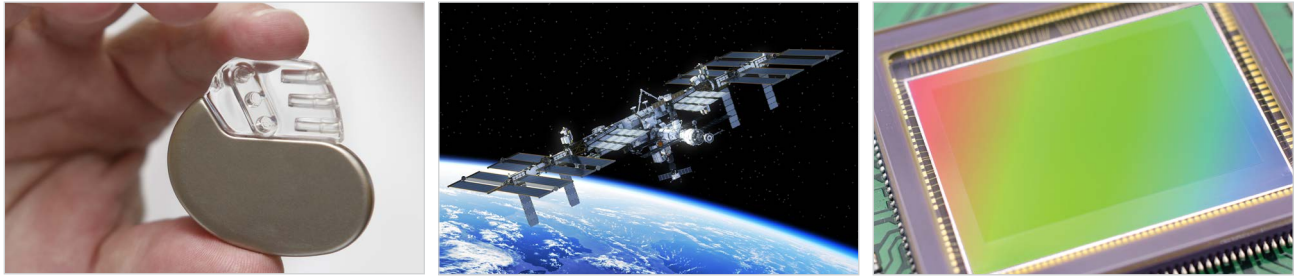




# OUTGASSING FAQs GUIDE



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, along with qualifying Samtec products. For additional information concerning data for a specific Samtec product, or to inquire about testing for a series or material not currently listed, please contact [PEC@samtec.com](mailto:PEC@samtec.com).

Material	TML (%)	CVCM (%)	Samtec Series
Vectra E130i*	0.04	0.02	SFM/TFM, SEAM (-05.5 height), LSHM (-02.5 & -03.0 heights), SSM/TSM, FTSH, CLP, ERF8/ERM8, S2M, UMPS, UMPT, HLE, HSEC8, UCC8
Vectra S471	0.05	0.01	ZF5S, QRM8 (-07.0 height)
Vectra S135	0.04	0.02	SEAM (-14 row), LSHM (-06.0 height), SFML, LPAF
Vectra E488ID	0.06	0.01	CLP (-D & -DBE), QRM8 (-02.0 height)
Vectra V143LC	0.06	0.01	T2M
Vectra S475	0.04	0.01	SEAF8/SEAM8
Vectra E135i	0.07	0.01	SEAF, UEC5
Sumika Super E6007 LHF MR BZ	0.04	0.01	ERM8 (-09.0 height), QRM8 (-05.0 height)
Valox 420SEO Black*	0.26	0.03	FFMD, FFSD
Zenite ZE55201	0.05	0.01	TEM
Zenite 5145L	0.08	0.01	HSEC1, STMM, LPAM
Zenite 6130 LX*	0.07	0.01	SEAM, LSHM (-03.0 height), SSM (-SH), IPL1, LPAM

Note: Series materials are subject to change; contact [PEC@samtec.com](mailto:PEC@samtec.com) for current specifications.

\* 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.

