



Test Report

NOVATECH N.V.

Product Emissions according to
ISO 16000
Tec7

December 2007

Client: NOVATECH N.V.
Industrielaan 3B
BE-2250 Olen
Belgium

Date: 5 December 2007

Testing Laboratory: Eurofins Environment A/S
Smedeskovvej 38, DK-8464 Galten

Thomas Neuhaus
Head of product emission test centre

Inge Bondgaard
Chemist



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Introduction

On 30 May 2007 Eurofins Environment A/S received a sample named

Tec7

Batch: 071308626023TEC71

for emissions testing according to ISO 16000. The sample was clearly labelled, properly packaged and not damaged. Testing was carried out in the laboratories of Eurofins Environment A/S. Before starting the testing procedure the sample had been stored unopened at room temperature.

1 Description of the Applied Testing Method

The applied method complies with the test method as defined in ISO 16000-6, 16000-9, 16000-11, ISO 16017-1. The internal method numbers are: 9810; 9811, 9812, 2802, 2803.

1.1 Test Specimen

The sample was pressed out of the cartridge and applied onto a glass plate and drawn off over a model giving a 3 mm thick and uniform layer with a broadness of 10 mm. The test specimen was transferred into a test chamber immediately (internal method no.: 9810)

1.2 Test Chamber

The test chamber was consisting of stainless steel and had a volume of 119 litres. The air clean-up was realized in multiple steps. Before loading the chamber a blank check of the empty chamber was performed. The operation parameters were 23 °C, 50 % relative air humidity (in the supply air) with an air exchange rate of ½ per hour. The loading of the test chamber was 0.4 m² test specimen per m³ air volume (internal method 9811).

1.3 Sampling, Desorption, Analyses

1.3.1 VOC Emissions Testing after 4 and 9 Weeks

The emissions of organic compounds after 4 and after 9 weeks were tested by drawing air samples from the chamber outlet through Tenax TA tubes (main tube and backup tube). Analyses were done by thermal desorption and gas chromatography / mass spectroscopy (internal methods no.: 9812 / 2808). All single substances were identified if the toluene equivalent in the Total Ion Chromatogram (TIC) exceeded 2 µg/m³. Quantification was done with the respective response factor and the TIC signal, or in case of overlapping peaks by calculating with fragment ions. All non-identified substances were quantified as toluene equivalent if giving more than 2 µg/m³. The uncertainty amounted to ± 20 % (RSD).

The results of the individual substances were calculated in three groups depending on their appearance in a gas chromatogram when analysing with a non-polar column (HP-1):

- Volatile organic compounds VOC: All substances appearing between these limits.
- Very volatile organic compounds VVOC: All substances appearing before n-hexane (n-C₆).
- Semi-volatile organic compounds SVOC: All substances appearing after n-hexadecane (n-C₁₆).

Calculation of the TVOC (Total Volatile Organic Compounds) was done by addition of the results of all substances between C₆ and C₁₆ as toluene equivalent, as defined in ISO 16000-6.

Calculation of the TSVOC (Total Semi-Volatile Organic Compounds) was done by addition of the results of all substances between C₁₆ and C₂₂ as toluene equivalent, as defined in ISO 16000-6.

Calculation of the TVVOC (Total Very Volatile Organic Compounds) was done by addition of the results of all substances appearing before C₆ as toluene equivalent, as defined in ISO 16000-6.

This test covered only substances that can be adsorbed on Tenax TA and that can be thermally desorbed. If other emissions occurred then these could not be monitored (or with limited reliability only).

The results are only valid for the tested sample(s).

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1.3.2 Accreditation

The testing methods described above have been accredited (EN ISO/IEC 17025:2005) by DANAK (no. 168).

2 Results

Tec7	CAS No.	Retention time min	ID-Cat.	After 4 weeks		After 9 weeks	
				Chamber concentration $\mu\text{g}/\text{m}^3$	Toluene equivalent $\mu\text{g}/\text{m}^3$	Chamber concentration $\mu\text{g}/\text{m}^3$	Toluene equivalent $\mu\text{g}/\text{m}^3$
TVOC (C₆-C₁₆)				360		6.7	
VOC Single Substances							
Tridecane	629-50-5	13.07	1	6.3	8.7	< 2	< 2
Tetradecane	629-59-4	14.06	1	44	66	< 2	< 2
Pentadecane	629-62-9	14.99	1	31	48	4.3	6.7
Mixture of VOC	-	10.5-15.5	4	280	280	< 2	< 2

<: means less than

Categories of identity:

- 1 = definitely identified, specifically calibrated
- 2 = identified by comparison with a mass spectrum obtained from a library, identity supported by other information, calibrated as toluene equivalent
- 3 = identified by comparison with a mass spectrum obtained from a library, calibrated as toluene equivalent
- 4 = not identified, calibrated as toluene equivalent