

VOC in paints and varnishes - EU Decopaint Directive

Volatile organic compounds (VOC) in paints and varnishes are restricted by European Directive 2004/42/EC

The Directive is limiting the total content of VOCs in certain paints and varnishes and in vehicle refinishing products for reducing VOC emissions and thus reducing generation of ozone in lower atmosphere. Next revision of this directive is planned for 2011, probably then including more product groups.

Requirements:

Any paint, varnish and vehicle refinishing product must not exceed the maximum VOC contents limit values as referred to on back of this leaflet. The limit values are valid for the ready to use product.

And the product must carry a label showing the type of product as given in the list, and the contents of VOC in g/l of the product in a ready to use condition. In this Directive the term volatile organic compound (VOC) is defined as any organic compound having an initial boiling point less than or equal to 250°C measured at a standard pressure of 101.3 kPa.

Eurofins delivers independent testing and certificate on VOC contents

The VOC test method is defined for two categories:

- ASTM D2369 for reactive coatings in which parts of the VOC will react to non-volatile film:
 - Sample is prepared as ready to use and applied on an aluminium dish
 - Drying at 110 °C during 60 minutes
 - Determination of weight loss, double determination

- ISO 11890-2 for all other cases:
 - Sample is prepared as ready to use
 - Dilution / extraction with solvent
 - GC determination, double determination
- The lab needs following information:
 - What type of product (as defined in the list of limit values)
 - Main VOCs in the product, and density in kg/l (most times this can be read from the Safety Data Sheet) - if not known then the lab has to determine these for a fee

Other VOC restrictions

Some voluntary ecolabels such as European "Flower" and German "Blue Angel" are requiring low VOC contents among other criteria. Test methods are partly different to what is required for EU Directive 2004/42/EC, but it will be cost-effective to perform all these tests at one time if relevant for marketing. Other applications of VOC testing are national restrictions e.g. in the USA and for LEED compliance.

VOC emissions into indoor air can be tested for other voluntary ecolabels such as Californian "Section 01350" and Finnish "M1". Eurofins is performing such tests since many years.

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Maximum VOC content limit values for paints and varnishes

	Product Subcategory	Type	Phase I (g/l (*)) (from 1.1.2007)	Phase II (g/l (*)) (from 1.1.2010)
1	Interior matt walls and ceilings (Gloss <25@60°)	water based	75	30
		solvent based	400	30
2	Interior glossy walls and ceilings (Gloss >25@60°)	water based	150	100
		solvent based	400	100
3	Exterior walls of mineral substrate	water based	75	40
		solvent based	450	430
4	Interior/exterior trim and cladding paints for wood and metal	water based	150	130
		solvent based	400	300
5	Interior/exterior trim varnishes and wood stains, including opaque wood stains	water based	150	130
		solvent based	500	400
6	Interior and exterior minimal build wood stains	water based	150	130
		solvent based	700	700
7	Primers	water based	50	30
		solvent based	450	350
8	Binding primers	water based	50	30
		solvent based	750	750
9	One-pack performance coatings	water based	140	140
		solvent based	600	500
10	Two-pack reactive performance coatings for specific end use such as floors	water based	140	140
		solvent based	550	500
11	Multi-coloured coatings	water based	150	100
		solvent based	400	100
12	Decorative effect coatings	water based	300	200
		solvent based	500	200

For reading more, see the EU Directive 2004/42/EC at:

http://europa.eu.int/eur-lex/pri/en/oj/dat/2004/l_143/l_14320040430en00870096.pdf

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