

Low VOC emission adhesives

Equivalency of EMICODE EC 1, Blue Angel RAL UZ 113, and CA Section 01350

In 2009, Eurofins Product Testing A/S performed a comparison test between VOC emission specifications of

- EMICODE (GEV classification and GEV testing protocol)
- Blue Angel RAL UZ 113 (flooring adhesives) specification and testing protocol
- California Section 01350 specification and testing protocol

All specifications were used in their most recently published versions as in early 2009. The tests had been ordered by GEV e.V., Düsseldorf / Germany. Report number is 7900417.

10 flooring installation adhesives were tested that were licensed for EMICODE EC 1 label "very low emissions. Samples had been purchased in the market.

All of these products had been optimized for low VOC emissions.

The most central findings are:

1. Eight of the ten products passed all involved criteria.
2. Two products failed both EMICODE EC1 and Blue Angel test, but passed original Section 01350 test.
3. If a 500 µg/m³ TVOC limit value is applied, as for e.g. FloorScore label, then these two products also would have failed.

Knowing that variability of VOC emission testing between batches and between different testing laboratories can be up to ± 30%, then conclusion is:

These three low VOC emission labels described more or less the same products as low VOC emitting, and about the same products as not low VOC emitting. They can be rated as equivalent.

For more detailed comparison of some main parameters, please see table on next page.

Not all detailed data are reported here, but the same conclusion holds true when looking more into detail.

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For more detailed comparison of some main parameters, please see below table.

Explanations:

< means not detected - the reporting limit was reported

Grey fields indicate that limit values were exceeded, or test result was close to limit value.

Sample No.	A	B	C	D	E	F	G	H	I	J
GEV – evaluated after 10 days –										
TVOC 10 Days, µg/m ³ (limit value: 500 µg/m ³)	200	120	5,1	44	50	540	45	63	1200	26
RAL UZ 113 – evaluated after 3 and 28 days –										
TVOC 3 days, µg/m ³ (limit value: 1000 µg/m ³)	710	320	< 5	79	100	850	58	310	730	450
TVOC 10 days, µg/m ³ (limit value: 1000 µg/m ³)	200	96	< 2	30	77	540	68	63	180	33
TVOC 28 days, µg/m ³ (limit value: 100 µg/m ³)	7.0	8.3	< 5	< 5	11	240	14	< 5	100	< 5
TSVOC 28 days, µg/m ³ (limit value: 50 µg/m ³)	< 5	5.1	< 5	< 5	< 5	< 5	< 5	< 5	890	< 5
VOC without NIK 28 days, µg/m ³ (limit value: 40 µg/m ³)	7.0	< 5	< 5	< 5	< 5	240	< 5	< 5	100	< 5
R-value 28 days (limit value: 1)	0	0.0055	0	0	0.11	0	0.14	0	0	0
Californian Section 01350 – evaluated mainly after 14 days –										
TVOC class room 14 days, µg/m ³	47	22	< 5	19	8.1	520 *	10	29	910 *	8.6
TVOC office 14 days, µg/m ³	53	25	< 5	21	9.1	590 *	11	32	1000 *	10

No single compounds were detected above their individual ½ Chronic REL according to CA Section 01350 after 14 days.

* TVOC has no limit value in CA Section 01350, but some other applications are setting a TVOC limit to 500 µg/m³, e.g. FloorScore.

For details of the involved testing methods, see www.product-testing.eurofins.com, then in the drop-down menu click Topics - Ecolabels.

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