Formaldehyde and *VOC* emissions

Formaldehyde and VOC emissions for panels and finishes: panel class, the EU limit and the BREEAM credit compared, with the evidence to ask for.

Compliance guidance. Read on 7 November 2026 from Regulation (EU) 2023/1464, a Defra memorandum, BREEAM manuals and BSI listings. The standards themselves were not read. Limits and credits depend on the scheme and version, so check the current text and your assessor or adviser. This is guidance, not legal or technical advice. It says nothing about any product or partner workshop: ask each supplier for its test report.

AT A GLANCE

Yardstick	What it is	Number as read	Where it comes from
Panel class (E1, E05, no added formaldehyde)	A class the panel maker declares under the panel standard, tested by chamber method.	Not quoted: the standards were not read.	BS EN 13986:2004+A1:2015; BS EN 717-1:2004
REACH Entry 77, furniture and wood-based articles	A legal limit on formaldehyde released under chamber conditions.	0.062 mg/m³ (0.080 for other articles), for articles placed on the market after 6 Aug 2026	Reg (EU) 2023/1464, Entry 77(1)(a)
Entry 77 test conditions	How the chamber test is run.	23 ± 0.5 °C, 45 ± 3 % RH, loading 1 m²/m³, 1 air change per hour, to steady state, not over 28 days	Entry 77, Appendix 14
BREEAM product limit, wood-based (baseline)	Formaldehyde, TVOC and carcinogens after 28 days in a chamber.	Formaldehyde 0.06 mg/m³ (MDF 0.08); TVOC 1.0; Cat 1A/1B 0.001	International NC V6 Table 17
BREEAM exemplary level	The stricter level for extra credits.	Formaldehyde 0.01; TVOC 0.3; TSVOC 0.1; Cat 1A/1B 0.001 mg/m³	International NC V6 Table 18
BREEAM room air test, before occupation	Measured in the finished room, not on a product.	Formaldehyde 100 µg/m³ (30 min); TVOC 300 µg/m³ (8 h)	International NC V6 criteria 12, 14; UK 2014 manual
Paint VOC content (a content figure, not an emission)	Grams of VOC per litre of product.	Matt interior walls 10 g/L; glossy 40 g/L	International NC V6 Table 19
Furniture and laboratory in BREEAM	Whether the VOC credit covers furniture; who may test.	Furniture out of scope; ISO/IEC 17025 laboratory	International NC V6 CN3.10, CN3.3

mg/m³ is milligrams per cubic metre; 100 µg/m³ is 0.1 mg/m³. A chamber result on a product and a room air result are different tests: do not compare them directly. BREEAM figures are from the International V6 manual unless stated; the UK manual for your project may differ.

SPECIFICATION WORDING

WOOD-BASED PANELS AND CORES

Wood-based panels, veneered panels and cores used in [item / package] shall be supported by a formaldehyde emission test report from a laboratory accredited to ISO/IEC 17025 for formaldehyde sampling and analysis, tested to [BS EN 717-1 / BS EN 16516 / ISO 16000-9, edition to be confirmed], stating the board type and thickness, the chamber conditions and the result in mg/m³. The result shall not exceed [0.062 mg/m³ / the figure in the project indoor air brief]. A class declaration (for example E1) without a test report is not accepted as evidence of this limit.

FINISHES AND ADHESIVES

For each coating, lacquer, oil and adhesive used in [item], the supplier states the VOC content in g/L as supplied and, where [BREEAM Hea [02 / 04], version [ ]] applies, a chamber emission result at 28 days to [standard and edition] from an ISO/IEC 17025 accredited laboratory. The finishing system as applied (primer, coats, adhesive) is named in the sample approval record.

MATCH TO THE SUPPLY

Test evidence relates to the board type, thickness range and finish supplied, and to a production period of not more than [24] months before order. A change of board manufacturer, resin system or finish requires new evidence and approval on substitution register [ref] before the item is ordered.

GOODS FOR THE EU OR NORTHERN IRELAND

For items to be placed on the market in the EU or Northern Ireland after 6 August 2026, the supplier confirms in writing that furniture and wood-based articles do not exceed the Entry 77 limit of Regulation (EU) 2023/1464 under the Appendix 14 conditions, and provides the test evidence.

TERMS USED

Formaldehyde class E1
A class that a wood-based panel maker declares for formaldehyde released from the panel, under the panel standard and a chamber test. The class is not the same thing as the EU legal limit, which is written as a chamber result.

VOC
Volatile organic compounds: gases released from paints, lacquers, adhesives and boards. Content (g/L of the product) and emission (mg/m^3 in a test chamber) are different measures.

STANDARDS AND SOURCES

- Commission Regulation (EU) 2023/1464, Entry 77 and Appendix 14 (REACH Annex XVII): OJ L 180, 17.7.2023. Read 7 Nov 2026.
- Defra explanatory memorandum C(2023)4687, Windsor Framework: 11 Jan 2024. Applies in Northern Ireland; 6 Aug 2026.
- BREEAM International New Construction V6.0, SD250, Hea 02: 1 Dec 2021. UK manuals not read.
- BS EN 16516:2017+A1:2020 Construction products: determination of emissions into indoor air: BSI: Current. Not read.
- BS EN 717-1:2004 Wood-based panels: formaldehyde emission by the chamber method: BSI: Current, Under Review. Not read.
- BS EN 13986:2004+A1:2015 Wood-based panels for use in construction: Listing: Current. Not read.

Full guide: https://makebespoke.com/trade/technical/formaldehyde-and-voc-emissions-for-panels-and-finishes. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.