



LOW EMISSION BUILDING PRODUCTS



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DIBt report for Sonae Arauco OSB products with **certificate nr. G-160-18-0003**

BUILDING REGULATION – WHAT IS NEW

European construction products regulation is implemented in Germany by the MVV TB (Musterverwaltungsvorschrift Technische Baubestimmungen). Despite there are no changes in the European regulation, in Germany an amendment of the building regulations took place. The new MVV TB replaces the previous German building regulation with its building regulatory lists and Technical Buildings Regulations and is effective since 1st of October 2019. In MVV TB there are seven basic work requirements. One of this requirements for construction works, is related with health protection and defines and specifies requirements to VOCs emission from materials, namely OSB.

VOCs – WHAT ARE VOCs

Volatile Organic Compounds are organic chemical compounds whose composition makes it possible for them to evaporate under normal indoor atmospheric conditions of temperature and pressure. Many familiar odors in everyday life are actually volatile organic compounds (VOCs). They include the smell of baking bread, flowers, fruits and perfumes. VOCs can be categorized by the ease they will be emitted. For example, the World Health Organization (WHO) groups them as:

- Very volatile organic compounds (VVOCs)
- Volatile organic compounds (VOCs)
- Semi-volatile organic compounds (SVOCs)

VOCs – WHAT ARE THE REQUIRED LIMIT VALUES

Measuring and understanding VOCs presents some important challenges because of multiple definitions and measurement methods. This is why any statement about VOCs needs to be accompanied by a description of how the VOCs were measured so that the results can be interpreted correctly.

In MVV TV the test method is required to be the chamber measurement in accordance to EN 1615 and the required limit values for organic compounds are defined for 4 main VOCs categories.

For each category the required emission limit values after 3 and 28 days are:

	3 days	28 days
Total Volatile Organic Compounds	≤ 10,0 mg/m ³	≤ 1,0 mg/m ³
Total Semi Volatile Organic Compounds		≤ 0,1 mg/m ³
TVOC without LCI*		≤ 0,1 mg/m ³
Carcinogenic (EU category Carc. 1A/1B)	≤ 0,01 mg/m ³	≤ 0,001 mg/m ³
R-value **		≤ 1

* LCI – Lowest Concentration of Interest

** Ratio between measured concentration of each substances and the corresponding LCI value

VOCs – WHY THERE ARE LIMITS IN BUILDING REGULATIONS

Improving indoor air quality (IAQ) is a matter with increasing focus in the society and has received growing attention from the international scientific community, political institutions and environmental governances. The VOCs emission are one of the factors affecting the indoor air quality (IAQ) and can influence the comfort, health, and wellbeing of building occupants. VOCs come from personal care products, carpet, furniture, paint, building products, fragrances and many other sources.

The building occupants behavior and activities, play also an important role influencing IAQ and the consequent exposure to indoor air pollution. It is possible to take simple steps to improve air quality, both at offices and at homes, by:

- Ventilating: Increasing the amount of fresh air brought indoors helps reduce pollutants inside. Bathroom and kitchen fans that exhaust to the outdoors also increase ventilation and help remove pollutants.
- Comply with buildings smoking policy and smoke only in designated areas.
- Use filters and changing them regularly: Central heaters, air conditioners and vacuum cleaners have filters to trap dust and other pollutants in the air.
- Keep indoor humidity between 30 and 50 percent.

Additional information and advises can be found in scientific publications and international institutions, such as International Journal of Environmental Research and Public Health and Harvard Medical School (www.health.harvard.edu/staying-healthy/easy-ways-you-can-improve-indoor-air-quality).

VOCs IN WOOD AND WOOD BASED MATERIALS

When we talk about VOCs in wood based materials and in particular in OSB we talk mainly about natural emissions from wood, since 95 % of the panel is wood. The remain materials in OSB composition are MDI, as non-added formaldehyde gluing system, and a polymeric wax emulsion.

Consequently OSB emissions depend strongly on the wood species (softwood, hardwood), on the wood age, log size and area from where the strands are generated (sapwood, heartwood).

The most common VOCs emitted by wood are:

- Terpenes like alpha-Pinene, beta-Pinene, 3-Carene.
- Organic acids like acetic acid.
- Aldehydes like Pentanal, Hexanal.

While terpenes are natural ingredients mainly in softwood, aldehydes are degradation products related to the natural reaction of unsaturated fatty acids and the atmospheric oxygen. This is a process which happens in every wood and wood based product.

Organic compounds have a natural decay behavior and are fully emitted to the ambient air after some time, thus it is not anymore measurable in the wood or wood based product.

SONAE ARAUCO PRODUCTS

Sonae Arauco is committed to produce sustainable products that can give lasting wood solutions to building industry.

For our company the responsible utilization of the raw materials and the use of wood from well managed and controlled origins is an important pillar of our industrial operations. Under the scope of this policy, Sonae Arauco has PEFC™ (Program for the Endorsement of Forest Certification) and FSC® (Forest Stewardship Council®) certification.

We also developed an **Environmental Product Declaration (EPD)** for each product type, as a tool for a reliable information of product's environmental impact throughout its whole lifecycle, from raw material sourcing to disposal. As EPD is an independently verified public declaration (www.ibu-epd.com for more information) it is a well-recognized methodology to choose better materials for buildings and promote carbon emissions reduction.

Our building solutions include a complete range of OSB panels, complying with the requirements of EN 13986 "Wood-based panels for use in construction", specially designed for structural applications:

- OSB 3 ECOBOARD
- AGEPAN® OSB 3 ECOBOARD
- AGEPAN® OSB 4 ECOBOARD
- AGEPAN® OSB 4 BAZ

DIBt report for OSB products from Sonae Arauco:

The German regulation defines and specifies requirements, however no certification procedure is defined. Sonae Arauco took the decision to apply to a voluntary verification from the German building authority DIBt [Deutsches Institut für Bautechnik]. This voluntary verification includes an external supervision and leads to an even clearer evidence of Sonae Arauco OSB low emission compliance.

The corresponding DIBt report for Sonae Arauco OSB products with the certificate number G-160-18-0003 can be viewed and downloaded in the download area of the website www.sonaearauco.com