NATIONAL ECOLABELLING PROGRAMME GREEN CHOICE PHILIPPINES

GCP PRP 2015007
Building Board Using Composite Materials

1. ENVIRONMENTAL SCENARIO

The long term global impact to the booming construction industry has forced researchers to find solutions to various problems via research and development and has given birth to the idea of using composite materials. Unlike plywood, it consumes no timber which the forest may no longer be able to supply in a sustainable way. Composite materials serve as an alternative to wood and could reduce deforestation. Demands for composite products has risen yearly because of the efforts of producers and increased consumer awareness of the importance and advantages of sustainability.

A wide range of raw materials, such as coconut husks, pineapple leaves, palm oil based biomass, banana stems, rice straw, wood wastes, bamboo, and rattan, are abundantly available around the world and have been used to develop composites for many applications. The chemical, physical, and mechanical properties of these renewable resources are similar to those of wood, and these may be suitable raw materials for wood-based panels. These materials are also suitable for generating new, sustainable, safer, and high-valued products using advanced techniques such as meeting fire performance standards, offers water resistance and good mechanical properties among others.

As it should be, it shall pose no health risks as in volatile organic compound (VOC), asbestos, and formaldehyde-free. It also boasts of being able to recycle the underutilized tons of residual biomass wastes produced every year therefore reduces landfill impact, with a manufacturing process that requires very low energy consumption and does not produce waste water pollution.

2. DEFINITION OF TERMS

2.1 Composite Material

A structured combination of two or more discrete materials [ISO 13943:2008 (en),4.51]

2.2 Volatile Organic Compound (VOC)

An organic compounds having boiling point below 240-260 degrees Celsius. VOCs are release easily from a source to the ambient air and cause air pollution. (WHO-World Health Organization)

2.3 Asbestos

Means the fibrous forms of varieties of mineral silicates belonging to rock forming minerals of the serpentine group, i.e. chrysolite (white asbestos); and the amphibole group i.e actinolite, amosite (brown asbestos, cummingtonitegrunerite), anthophyllite, crocidolite (blue asbestos) and tremolite. (DENR Administrative Order No. 02 Series of 2000)

2.4 Republic Act 9003 “Ecological Solid Waste Management Act of 2000”

An act providing for an ecological solid waste management program, creating the necessary institutional mechanisms and incentives, declaring certain acts prohibited and providing penalties, in appropriating funds therefor, and for other purposes.

2.5 Republic Act 8749 "Philippine Clean Air Act of 1999)

An act providing for a comprehensive air pollution control policy and for other purposes.

2.6 Republic Act 9275 "Philippine Clean Water Act of 2004"

An act providing for a comprehensive water quality management and for other purposes.

2.7 Republic Act 6969 "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990"

An act to control toxic substances and hazardous and nuclear wastes, providing penalties for violations thereof, and for other purposes.

2.8 Presidential Decree No. 1586 "Environmental Impact Statement System"

Establishing an environmental impact statement system, including other environmental management related measures and for other purposes.

2.9 Sustainably-managed forest is a managed forest to meet all existing regulations such that environmental, social and economic factors are balanced to meet the needs of the present without compromising the ability of the future generations to meet their needs.

2.10 PNS

Philippine National Standard

2.11 Fitness for purpose

Ability of a product, process or service to serve a defined purpose under specific conditions [ISO 14024:1999(en), 3.14]

3. SCOPE

These criteria shall apply to composite boards for the building industry, excluding fibre-cement board. Panel systems are not covered by this criteria.

4. GREEN CHOICE CRITERIA

To carry the Green Choice Philippines seal of Approval, the product shall meet the following requirements:

	GREEN CHOICE PHILIPPINES REQUIREMENTS	EVALUATION AND VALIDATION METHOD
4.1	**Product Quality Performance**	
4.1.1	**Fire-Resistance (Applicable only for products with fire-resistant/fire-proof claims)** Must meet local or international fire standard of the highest grade (such as Fire Code of the Philippines two (2)-hour fire resistance rating, Class A Fire Resistance (China); others)	The applicant shall submit a copy of laboratory test results issued by the authorized institution indicating support of the claim.
4.1.2	**Water-Resistance (Applicable only for products with water-resistant claims)** Thickness swelling after 24 hours of submersion should not be greater than 1%.	The applicant shall submit a copy of third-party laboratory test results.
4.2	**Environmental Requirements**	
4.2.1	**Compliance to Environmental Regulation** The applicant is required to comply with relevant Philippine environmental laws and regulations such as PD 1586, RA 9003, RA 9725, RA 8749, and RA 6969, and/or that of the country of origin.	The applicant shall submit a copy of applicable licenses and permits to operate indicating the company's compliance to existing environmental laws and regulations. In case of imported raw materials or products, the applicant shall submit a certification, in English, from the Environment Ministry or Department of the country where the product/s is/are manufactured that states that the manufacture of the product/s has complied with their air emissions and effluent standards.

4.2.2	**Material Content** The product shall contain 60% sustainably sourced material, such as but not limited to materials sourced from non-destructive sources, sustainably-managed forests or industrial tree plantations for fibres, postproduction materials, post-consumer materials, waste material, and others.	The applicant shall submit documentation and evidence that the raw material is from sustainable sources. Information may include but not limited to the names of suppliers, origin, and type of material supplied, with the corresponding certifications or declarations.
4.2.3	**Heavy Metal Content** Hazardous substances shall not be used as an ingredient of the product (whether as a substance or part of its production process). The levels of the following hazardous substances as impurities shall not exceed the following. • Cadmium: 10 ppm • Lead: 300 ppm • Chromium VI: 10 ppm • Arsenic: 50 ppm • Mercury: 10 ppm • Selenium: 20 ppm	Third-party laboratory test report. Test Methods: Lead and Cadmium: USEPA 3051A/7000B Chromium VI: USEPA 7196A Arsenic: USEPA 3051A/7061A Mercury: USEPA 3051A/7471B Selenium: USEPA 3051A/7741A. Equivalent methods are acceptable.
4.2.4	**Consumer Information** Instruction manual(s) shall accompany the product concerning its construction, use, disassembling, and preferably also recycling and disposal.	The applicant shall submit all the supporting documents. Copy of documentation to be supplied with the product clearly stating the required information.
4.3	**Material Specific**	
4.3.1	**For mineral-bonded product:** **Asbestos Content** The product shall not contain asbestos.	Third-party laboratory test report or certificate demonstrating conformance with the requirement.
4.3.2	**For synthetic resin-bonded product:** **Formaldehyde Content** The maximum formaldehyde content of the product shall not exceed FE1 level of the Philippine National Standard or its equivalent international standards.	Third-party laboratory test report. Test Method: ASTM D5582 - Standard Test Method for Determining Formaldehyde Levels from Wood Products Using a Desiccator Or equivalent

5. PERIOD OF VALIDITY

The product criteria shall take effect and in circulation for comments for three (3) years from the date of its approval, and subject to change or withdrawal by the NELP-GCP Board, if proven necessary at any period of time.

6. REFERENCES:

Administrative Order (AO) No 171: Creating the Presidential Task Force on Climate Change.

DENR Administrative Order (DAO) No. 02 series of 2000: Chemical Control Order for Asbestos.

DENR Administrative Order (DAO) No. 14 series of 2003: Philippine Environment Partnership Program that supports the Industry Self-Regulation Towards Improved Environmental Performance.

DENR Administrative order (DAO) No. 29, Series of 1992: Implementing Rules and Regulations of Republic Act 6969.

Implementing Rules and Regulations (IRR) of Republic Act No. 9514 otherwise known as the “Fire Code of The Philippines Of 2008”

Rasat, M.S.M., Waha, R., Sulaiman, O., Moktar, J., Mohamed.,A., Tabet, T.A., and Khalid, I., (2001). “Composite Oil Palm Frond Boards,” BioResources 6(4), 44389-4403.

Republic Act (RA) No. 9003: Philippine Ecological Solid Waste Management act of 2000.

Suhaily, S.S., Jawaid, M., Abdul Khalil, PH.P.S.,Mohamed, A.R., and Ibrahim, F. (2012). “A Review of Oil Palm Biocomposite For Furniture Design and Applications: Potential and Challenges” BioResources 7(3) 4400 -4423.

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