GREEN CHOICE PHILIPPINES

GCP PRP-2008001
ORGANIC INFILL MATERIAL

1. ENVIRONMENTAL SCENARIO

Artificial turf has achieved growing popularity in recent years, particularly for football fields. Over the last two years those artificial turf system, for example artificial grass, have been further improved using new development in fibre technology, turf technology and total system installations. An important reason for this trend is a new generation of artificial turf system, in which fibres with low sliding resistance are utilised in combination with elastomer material as infill material. Rubber particles are well known as infill material. The rubber particles which are used as rubber infill material have a significant influence on the total system and its performance.

In the majority of cases the rubber infill materials of the artificial turf systems have been produced from recycled rubber from tyres. However one of the disadvantages of the use of recycled rubbers from tyres, in example artificial grasses for football fields, is the warming up of the rubber infill material during sunny weather. The black coloured rubber infill can reach temperatures of 70^{O}C. Because of the heat transfer of the rubber infill material, football players can get unnaturally warm, which can be very uncomfortable. Another disadvantage of the use of recycled rubbers from tyres is an environmental risk of leaching the aromatic and/or heavy metals into the ground or groundwater. Rubber also contains industrial chemicals that can be released into the air during playing and which may run off into the environment in rainwater.

Some chemicals in rubber vaporize to form a gas (volatile organic chemicals or VOCs such as toluene and benzothiazole), while others remain in the solid-phase (e.g., metals, polycyclic aromatic hydrocarbons or PAHs). Given the variety and types of chemicals involved, it is not surprising that some have toxic or carcinogenic activity when tested in laboratory animals. VOC release from crumb rubber infill is expected to be greatest in sunny, hot weather. Particle release may be affected by the number of athletes using the field and the intensity of their exercise. Temperature gradients and wind will generally afford rapid dilution and low concentrations in the breathing zones of athletes.

2. DEFINITION OF TERMS

2.1 *ORGANIC INFILL* - a particulate substance or material derived from natural sources used to fill in.

2.2 *SYNTHETIC RUBBER* - is any type of artificially made polymer material which acts as an elastomer. Usually made of raw material derived from petroleum, coal, oil, natural gas, and acetylene.

2.3 *VULCANIZATION* – refers to a specific curing process of rubber involving high heat and the addition of sulfur. It is a chemical process in which polymer molecules are linked to other polymer molecules by atomic bridges composed of sulfur atoms.

2.4 *VOLATILE ORGANIC COMPOUNDS* – means any organic compound which has a vapour pressure more than 0.1 mm Hg at 25^{O}C. This definition excludes reactive diluents, which are designed to be chemically bound into the cured film. It is also defined as all organic compounds that have an initial boiling point below 250^{O}C.

2.5 *DAO* – DENR Administrative Order

2.6 *PNS* – Philippine National Standards

2.7 *LEACHING* - Removal of materials by dissolving them away from solids. Leaching is an environmental concern when it contributes to groundwater contamination. As water, from rain, flooding or other sources, seeps into the ground, it can dissolve chemicals and carry them into the underground water supply.

3 SCOPE

These criteria are applicable to organic infill material

4 GREEN CHOICE REQUIREMENTS

4.1 Product Quality Performance

Products shall be of high quality and perform well in their intended application. High standards of product performance are implicit in the label. The products must ensure its fitness for its intended purpose and where relevant.

4.1.1 Particle Size

The particle size of the product shall not be greater than to 4.8 mm.

4.2 Product Environmental Performance

4.2.1 Toxicity

The product shall not contain any toxic substances.

4.2.2 CO_2 emission

The product shall not exceed a carbon dioxide intensity of 5% by weight of product output.

4.2.3 Compliance to environmental regulations

The applicant is required to comply with relevant environmental legislations this includes production process, transport and disposal features of the product.

4.3 Other Criteria

4.3.1 Label

- The label must specify the intended use of the product.
- It must also include detailed instructions for proper use to maximize the product performance and minimize waste.

5 EVALUATION AND VALIDATION

5.1 For Green Choice requirements under 4.1 and 4.2, the applicant shall submit a certification from recognized/accredited laboratories or product testing results from the company.

5.2 Regarding product requirement 4.2.3, the applicable licenses and permits to operate indicating the manufacturer's compliance with agreements on environmental regulations applicable to the area which the plant is located shall be submitted.

6 PERIOD OF VALIDITY

The product criteria shall take effect for three (3) years from the date of its approval, and subject to change or withdrawal by the *Green Choice Philippines – ELP Board, if necessary at any period of time.*

REFERENCES:

1. CESDR-DLSU; *Streamelined Life Cycle Assessment of Naturalfill*; 2007
2. Koch, Michael and Maaren Van, Martinus; *Use of Vulcanised Thermoplastic elastomer or styrene-ethylene-butadiene-styrene polymer as infill material in artificial turf system;* WO 2005/047602 A1, 2005
3. http://www.ct.gov/dph 2007; *Artificial Turf Fields: Health Questions*