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PERMANENT JUDICIALLY ACCREDITED EXPERT

Bachmanning, 28.04.03

TECHNICAL OPINION
on the Application of Rubber
Granulates for the Building of Football
Pitches with Artificial Turf

on behalf of the company

GVG GUMMI VERWERTUNGS GMBH
Unterthalhamstraße 2 in A-4694 Ohlsdorf/Austria
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Rep. no.: B-166/03
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ABSTRACT

Up to now, analysis of rubber granulates made of recycled tyres has shown that the limit can be maintained in aqueous leachate, whereas it is sometimes exceeded in the so-called acid environment.

The undersigned was instructed to verify, to what extent these zinc limits actually are to be assessed as relevant to the environment.

In summary, based on the technical opinion presented the following points can be confirmed:

1. Leaching of waste with water saturated with CO₂ does not lead to any environmentally relevant results, as in this case waste is analyzed in an environment that is not to be found in nature. Therefore, also the measured values generated this way cannot be interpreted ecologically. Hence, this procedure is not employed for the examination of waste materials.
2. Irrespective of that it must be stated that the setting of a limit for zinc irrespective of the leaching procedure with regard to the environmental requirements for bound resilient bases, elastic layers and artificial turf surfaces including packing material for the effective pile does not appear necessary, as zinc is not a toxic heavy metal, but an indispensable trace element for human beings, also resulting in the fact that not even the drinking water regulation of the EC includes a limit for zinc.

The purpose of such a limit is not deducible from the toxicological point of view. Therefore, one can't help thinking that these limits for zinc were chosen with the sole purpose of being able to exclude recycled material - under the cloak of "environmental requirements" - from being applied for the effective pile.

3. The utilization of this recycled material would be very welcome from the ecological point of view as well as concerning the considerate use of resources, as it would result in the substitution of 100 t of crude oil per sports field, which would be necessary for producing an equal tonnage of new EPDM granulates.

Details about the person of the undersigned:

For more than 25 years DI. Dr. Begert has been a civil engineer for technical chemistry, judicially accredited expert for the specialist fields of water chemistry and technical chemistry, authorized food appraiser according to § 50 for the branch of drinking water and mineral water as well as head of the accredited test site Umweltlabor Dr. Axel Begert GmbH.

Apart from the field of drinking water and mineral water, DI Dr. Begert is a specialist for analytical waste chemistry and therefore chairman of the committee for specialist standards "Analytical Waste Chemistry" in the Austrian Standards Institute as well as vice chairman of the committee "Waste Characterisation". As a result, he was appointed Austria's delegate at the European Standards Institute in CEN TC 292 "Waste Characterisation".

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