Boskalis

PRODUCT SHEET

BEAUMIX®

ORIGIN

In the Netherlands, all municipal waste is incinerated in Waste to Energy Plants (Dutch: AEC's). During the combustion process, energy is generated but also residuals, such as bottom ash, fly ash etc., are produced. More than 1.5 million tonnes of incinerator bottom ash (IBA) are produced each year. This material consists mainly of coarser minerals, ceramics, glass, slag, and metal parts.

PROCESS

In order to apply these residuals in a more sustainable and useful way, a "Green Deal Sustainable application IBA" was drawn up in 2012. Boskalis Environmental/HVC (wASH VOF) has developed a system to process IBA. This washing process is based on extensive metal removal (both ferrous and non-ferrous), separation and dewatering of the fines, advanced processing of mineral fraction and purification/treatment of contaminated process water. This process produces an unrestricted reusable building material called: Beaumix® which is highly suitable in the GWW sector (civil engineering).

APPLICATION

Beaumix® consists of a homogeneous mineral fraction of 0 to 20 mm. By removing the fine fraction, the material has good draining properties. Due to the broad particle sizes distribution spectrum of the material, from fine to moderately coarse, it is also easy to compact. Beaumix® was incorporated by the Ministry of Infrastructure and Environment (Dutch: Rijkswaterstaat) in 2017 and validated to the Requirements Substructure (Dutch: Eisen Onderbouw). For all these types of material, the application must be functional and removable, according to the Dutch legislation.

INFORMATION

Location	Alkmaar and Assendelft, Netherlands
Annual quantity	Alkmaar, approx. 200,000 tonnes Assendelft, approx. 400,000 tonnes
Bulkhead available	Alkmaar, located along a waterway, barge class IV Assendelft, located along the North Sea Channel, large vessel class Va

A IBA Processing Facility Alkmaar
B Quality control at project site

When applied, it is necessary to compact according to the requirements for sand compaction in the RAW Standard 2015, Article 22.02.07 (5) and (6). The project should also determine the particle size distribution for at least 10 locations, where a maximum percentage of the fine fraction (particles smaller than 63 microns) of 5% by weight is allowed.

CIRCULARITY

Beaumix® is a residual product originating from a waste incineration process and processed/treated which results in an unrestricted reusable building material. Because of this, the material is (according to the definition of CB'23*) a reusable product which reduces extraction of (primary) raw materials such as sand. Beaumix® contributes to the Rijksbrede programma Circulaire Economie 2050 (Government-wide Circular Economy 2050 Program).

MKI AND CO_2

The material has an MKI (environmental cost indicator) of € 0 and a CO_2 emission of 0 kg. The treatment processes for Beaumix® are, based on the NMD Bepalingsmethode versie 1.1 maart 2022, assigned to IBA.

C Application Amaliaviaduct Maasvlakte

KIWA CERTIFICATES

BRL EN 13242 (0620-CPR-88102)
BRL 2307-1 (KOMO) (K88101)
BRL 2307-2 (NL-BSB) (K88100)

Parameter	Unit	Weighted average	Requirements RAW			Test method
			Sand for backfill	Drain sand	Sand for embankment	
Fraction < 63 µm of fraction < 2 mm	% (m/m)	5		≤ 5	≤ 15	Test 2 & 11
Fraction on sieve 250 µm	% (m/m)	87		≥ 50		Test 11
Loss on ignition of fraction < 2 mm	% (m/m)	1		≤ 3	≤ 3	Test 28
Fraction < 2 µm	% (m/m)	3*	≤ 8			Test 1
Fraction < 63 µm	% (m/m)	3	≤ 50			Test 2
Conclusion			Comply	Comply	Comply	

*Not determined during production checks

Contact details for a specific application of Beaumix®

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