

## IBAA - M-LS Comparison

	IBAA	M-LS
What is it?	IBAA is an all-purpose construction aggregate.	M-LS is a manufactured aggregate for use in masonry and certain unbound applications.
What is it derived from?	IBAA is the solid residue that is left over after waste is burnt in an energy from waste facility.	M-LS is a manufactured product derived from thermal residues.
What is it made of?	It is composed of glass, brick, rubble, sand, grit, metal, stone, concrete, ceramics and fused clinker as well as combusted products such as ash and slag.	It is composed of carbonated thermal residue, with added fillers and binders.
How is it produced?	Large objects, such as stones, bricks and metals are screened out and are recycled/reused. The remaining ash is conditioned by natural weathering.	The thermal residues (mainly Air Pollution Control residue from Energy from Waste plants) are treated using carbon dioxide, and bound using fillers and binders.
What are its physical characteristics?	Angular particles of varying sizes.	Rounded pellets of varying sizes.
What are the potential applications?	SHW 600 (classified fill and capping), SHW 800 (unbound/hydraulically bound mixtures), SHW 900 (use in road pavements - bituminous bound mixtures), SHW 1000 (concrete).	SHW 600 (classified fill and capping), SHW 800 (unbound/hydraulically bound mixtures), SHW 1000 (concrete).
What specifications can it comply with?	BS EN 13242 (aggregates for use in Unbound and Hydraulically bound mixtures), BS EN 13285 (unbound mixtures), BS EN 13043 (aggregates in bituminous mixtures and surface treatments for roads, airfields and other trafficked areas).	BS EN 13055-1 (lightweight aggregates for concrete, mortar and grout), BS EN 13242 (aggregates for use in Unbound and Hydraulically bound mixtures).*
Is it dangerous?	The Public Health England (formerly the Health Protection Agency) indicates that there is little risk of public exposure to ash residues provided they are handled appropriately.	The life cycle of the aggregate has been assessed as part of the End of Waste process. The Environment Agency has recognised that M-LS "can be stored and used with no worse environmental effects than a comparative virgin material".
How is it assessed to be non-hazardous?	Operators are responsible for classifying correctly the IBA that they produce as either hazardous or non-hazardous. The Environmental Services Association (ESA) has developed a protocol which sets out in detail how plants should sample and analyse IBA.	O.C.O Technology has designed and implemented a quality control system that incorporates regular production control checks, and product sampling and testing. Any product not conforming to the standard is quarantined and reprocessed or sent to landfill.

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What is the sampling and testing protocol?	The ESA has developed a protocol for sampling and testing. The protocol requires the plant to regularly sample the IBA and to how to mix this and remove a sub-sample suitable for laboratory testing. The sub sample is analysed for concentrations of key metals, and major cations and anions that are relevant to the hazard assessment. If the IBA is hazardous it must either be disposed of in a hazardous waste landfill or go for further treatment.	O.C.O Technology operates three levels of testing. Firstly, every consignment of waste arriving at the processing plant is tested against an inward specification. Waste failing the testing is quarantined or rejected. The freshly manufactured product is sampled multiple times every day and tested for key chemical performance indicators. Each week, two random samples taken from the sample library are then subjected to a full chemical analysis. Any product not conforming to the standard is quarantined and reprocessed or sent to landfill.
What are the quality protocols?	The ESA is also supporting the Environment Agency and WRAP to develop an End of Waste Quality protocol for IBA. A key element of this process will be demonstration that the processed IBA (IBAA) is in compliance with a recognised UK or European aggregate specification.	O.C.O Technology has achieved End of Waste status for aggregate produced from air pollution control residues. This includes demonstrating that the aggregate conforms to the relevant standard and can therefore be used as such. A chemical performance specification was devised and included in the End of Waste documentation. The product continues to be assessed to this specification.
What benefits does it offer?	<ul style="list-style-type: none"> <li>• Reducing the waste going to landfill</li> <li>• Reducing reliance on primary aggregates</li> <li>• Low bulk density so more (volumetrically) can be transported per vehicle movement</li> <li>• IBA absorbs CO<sub>2</sub> from the atmosphere</li> </ul>	<ul style="list-style-type: none"> <li>• Diverting hazardous waste from landfill</li> <li>• Reducing reliance on primary aggregates</li> <li>• Consistent physical and chemical performance</li> <li>• It is carbon neutral**</li> </ul>

\*Detailed datasheets and CE certificates are available upon request

\*\*The carbon storage associated with the M-LS product is managed in [Puro Registry](#) for carbon removal credits and is only available by separate negotiation with O.C.O



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