Integrated Aqua Systems, Inc.

IAS BioElements™

IAS BioElements™ are an efficient biological filtration media specifically suited for use in recirculating aquatic systems. IAS BioElements™ are used internationally in some of the largest and most advanced aquaculture systems in the world. As a leader in the supply of aquaculture filtration technologies, Integrated Aqua Systems, Inc. now offers IAS BioElements™ as a key component in our BioElement™ Biofilters and also separately in quantities to meet the requirements of small and large scale applications. Special packaging is available for specific market requirements. Contact IAS for BioElement™ biofilter sizing and selection assistance.

- **HIGH USABLE SURFACE AREA:** At 750 m^2/m^3 (228 ft^2/ft^3) IAS BioElements™ have very high specific surface area per unit volume and also higher usable surface area than other biological medias on the market today.

- **FORM STABLE:** BioElements™ are advance engineered, injection molded (not extruded) media that will not clog, compress, wedge or bind together. The result is a long lasting media that will maintain its form and not degrade over time.

- **IDEAL DENSITY:** BioElements™ are available in 3 densities for 3 types of biological filtration formats. Our slightly buoyant Light media (0.93 g/cm^3) is suited for up-flow style filters. Medium density media (1.00 g/cm^3) is neutrally buoyant and designed specifically for moving bed biofilters which results in considerable energy savings by requiring less aeration for proper mixing. Heavy media has a density of 1.2 g/cm^3 and is used primarily in down-flow fixed bed filters.

- **PACKAGING OPTIONS:** BioElements™ are available with several different packaging formats to suit any scale project. IAS also builds and supplies complete BioElement™ biofilters for Recirculating Aquaculture Systems (RAS).

  - 1 ft^3 boxes (0.03 m^3)
  - 1 m^3 pallet (35.3 ft^3)
  - 3 m^3 Supersack (105.9 ft^3)
  - 60 m^3 Full Container Load (2118 ft^3)
  - Complete BioElement™ MBBR Biofilters - Built to Order

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A multitude of possibilities:

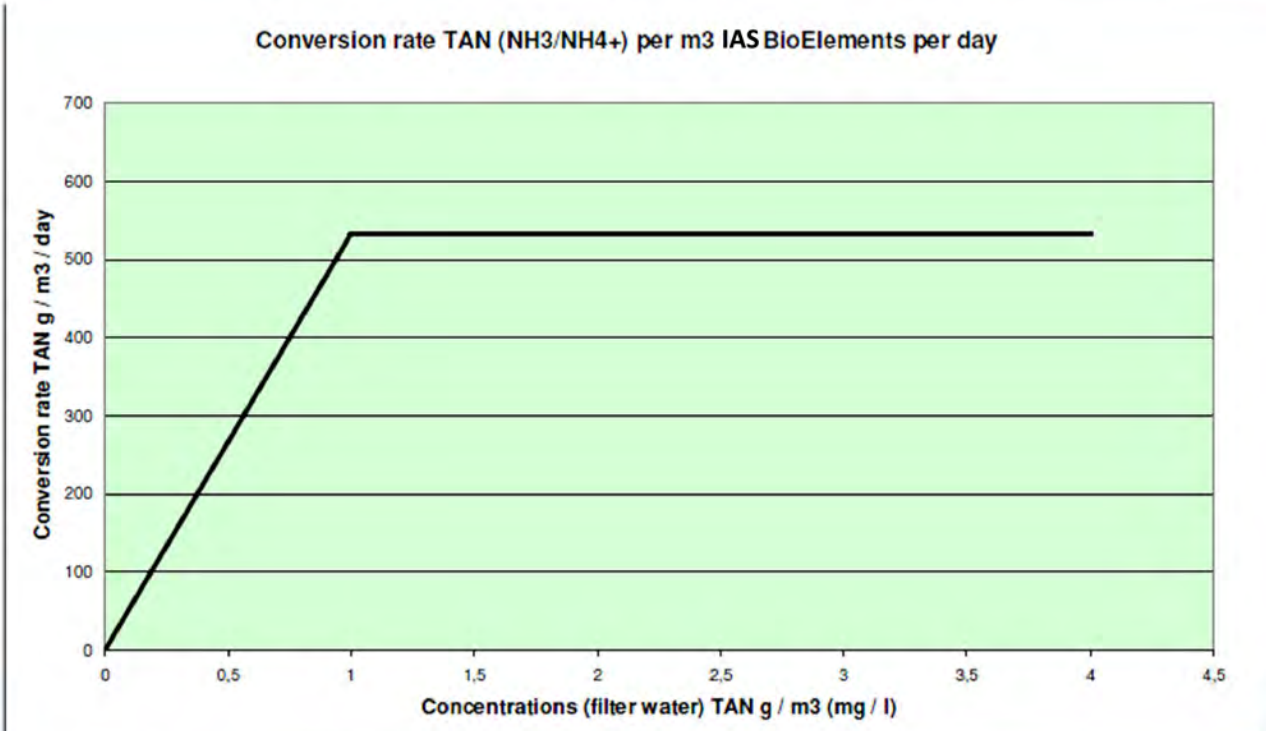
IAS BioElements Light	IAS BioElements Medium	IAS BioElements Heavy
have a density of 0.93 g/cm³ and are used in "up-flow" and "moving bed" filters.	*have a density of 1.00 g/cm³ and are used primarily in "moving bed" filters, where this density results in considerable energy savings.*	*have a density of 1.20 g/cm³ and are used primarily in bottom filters - "down-flow fixed-bed" filters.*

BioElements	Light	Medium	Heavy
Volume weight (kg/m³)	158	172	210
Number (pcs/m³)	255.000	255.000	255.000
Specific surface area (m²/m³)	750	750	750
Density (g/cm³)	0,93	1,0	1,20

IAS BioElements are produced in Polypropylene (PP), which contains no halogens, and can be recycled or disposed of by incineration, where the end product is exclusively water and carbon dioxide.

The filling material used in IAS BioElements Medium and Heavy is Barium Sulphate. (BaSO4). Barium Sulphate is environmentally neutral, ref. safety data sheet: "No danger of toxity, the material is biological inactive".

IAS BioElements are delivered in Big Bags of 3 m3 specially designed to optimize freight costs and minimize waste during packaging and transportation. Also sold in 1 ft.³ boxes, 1m³ bags, and full container load quantities.



Conversion rates TAN: 0.71 g/m² * day = 532 g/m³ * day

Conversion rates TAN: 0.002 oz/ft² * day = 0.53 oz/ft³ * day