



Material Comparisons



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Material Comparisons

Specific Densities:

Pure water equals 1kg per litre, 1000 litres of water equals 1 Cubic metre = 1000kgs or 1 Metric tonne

Therefore the specific density of water is 1 The specific density of all metals are measured against this

SD of Stainless Steel = 7.65 7.65 tonne per cubic metre (m³)

Material	Specific density (averaged)
Aluminum	2.70
Steel	7.85
Stainless Steel	7.65
Plaztuff [™]	0.95

For an 8000L tank with material at above weight and thickness of material based on material used

Sheet size 3000mm x 1500mm (4.5m²)

Material

- Aluminum 5mm
- Stainless Steel 3mm
- Steel (Mild) 4mm
- Plaztuff[™] 12mm

To build an 8000L tank of the same dimensions using the same configuration for baffles excreta we would require 10 sheets

The fabrication times for these products are fairly close although plastic and aluminum being much lighter require less handling. Cutting, welding and finish work are much the same except for steel which requires some form of protective coating.

Comparing the finished tank weight based on 10 sheets

Material	Tank weight
Aluminum 5mm	607 kg
Stainless Steel 3mm	1032 kg
Steel (Mild) 4mm	1413 kg
Plaztuff [™] 12mm	513 kg

When compared with Plaztuff[™]:

Aluminum will corrode is prone to dissimilar metal corrosion and electrolysis

Stainless Steel is prone to dissimilar metal corrosion is twice the weight

Steel needs protective coatings pushing up the price, it will still rust and is three times the weight

Plaztuff™ can be specified to your customer's exact requirements Colour, UV Stabilizers, fire retardants and chemical inhibitors can be added to create product specific to its environment

Plaztuff™ does not Rust, Rot, Corrode, get osmosis or electrolysis and will handle a wide range of chemicals and fuel oils.

When welded Plaztuff™ will not lost a grade, change its properties in any way shape or form and will not expose the material to rust or corrosion

Plaztuff™ is easily worked with a wide range of tools and machinery, can be machined, tapped and routed

Plaztuff™ has very good engineering properties when compared to rotary molded Medium Density Polyethylene

Plaztuff™ can is FDA specified as a food grade material and is approved for use as a Fuel grade material

Plaztuff is the highest grade of engineering Polyethylene's that can be successfully welded PVC, Acrylics, ABS and a range of other plastics all have their uses but none have the engineering proprieties that make them suitable for the engineering applications of either Plaztuff or Polypropylene

UHMWPE is a slightly higher grade than Plaztuff but UHMWPE can't be welded

Plaztuff versus Polypropylene (the only weld able alternative)

Plaztuff is inert, and creates a lower static charge than polypropylene, An inert substance, according to chemists, is not readily reactive with other elements, in that it cannot produce other chemical compounds. In other words, molds, mildews, and discolorations will not occur with an inert substance, Polypropylene is also inert, but that's where the similarities end.

The lower static charge produced by Plaztuff as opposed to the higher charge emitted by polypropylene means that Plaztuff will attract much less dirt, dust and other foreign, organic elements.

Plaztuff is more flexible than polypropylene which makes it easier to form and less brittle than Polypropylene.

Plaztuff has twice the impact strength of Polypropylene has a higher wear factor a higher abrasion resistance and a better Co efficient of friction

Plaztuff is easier to work than Polypropylene as Plaztuff has a higher workable temperature Polypropylene will bind to cutting tools and tends to weld itself together if the cutting rpm is to high

Plaztuff is easier to weld than Polypropylene and the most ideal material for use in a much bigger range of engineering application