Building a «green» swimming pool (with sparkling blue water)

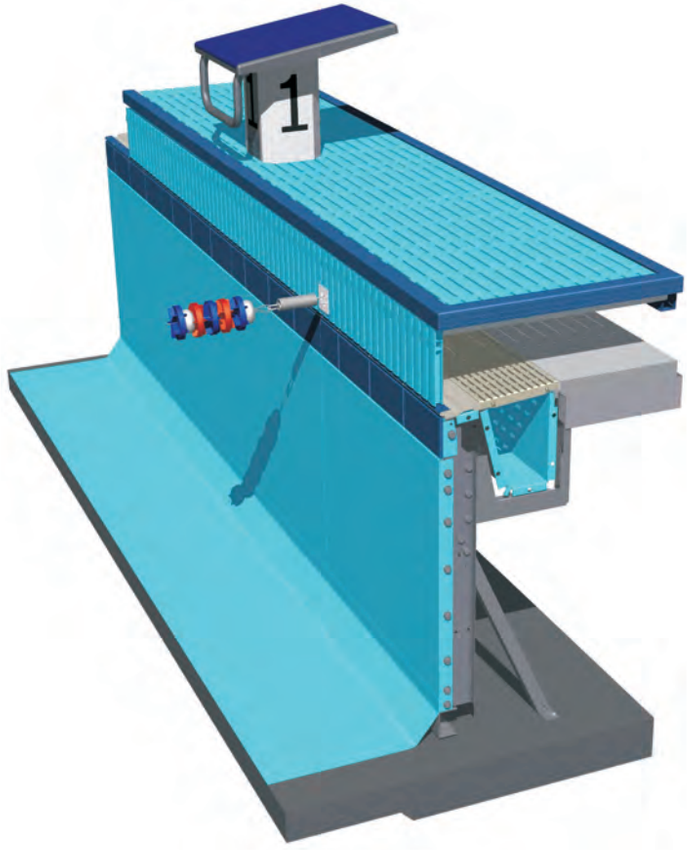
Comparison between Myrtha Technology and a traditional concrete structure

Governments around the World
now recommend that measuring and reducing CO_2 emissions
are the first steps we should take to lower our impact on climate change.
Myrtha Pools therefore commissioned ACOR Consultants (www.acor.com.au),
a renowned Australian engineering company, to compare the energy used in building
a Myrtha pool versus a traditional concrete tank. Such quantity of energy is expressed as the “Carbon footprint”,
that is the quantity of CO_2 which corresponds to the energy necessary for the production of the materials used.
The measure of CO_2 emissions is obtained by transforming the MJ of energy expended in the production of the various materials
to the equivalent tons of CO_2 that would be emitted by the combustion of the quantity of oil necessary to obtain the same energy.
Such a system makes the comparison comparable also between materials that use different production technologies.

Myrtha Pools®

The calculation system was developed from studies carried out by the ISSF (International Stainless Steel Forum), CSIRO (Australian Commonwealth Scientific and Research Organization) and the Centre for Building Performance Research at Wellington Victoria University (NZ). The tables allow calculations to evaluate the various building techniques (concrete, Myrtha technology, other prefabricated pools), and with expert analysis, you are able to create a detailed and scientific comparison to measure the environmental impact of the project.

From the attached example it is clear that **Myrtha technology** has **a "carbon footprint" significantly lower than a traditional pool made with concrete and tiles.** The saving on the emissions obviously depends on the individual projects dimensions and shapes, but if we take the classic examples of competition pools (50x25x2m and 25x25x2m, quoted in the tables), an approximate saving of 50% is quantified.
In order to give an immediately tangible comparison; the energy saved by building a 50x25m pool (2.516.000 MJ) in **Myrtha would provide heat and electricity to a 100 m^2 apartment for at least 45 years!**



Myrtha Pools utilize a technology which is based on stainless steel with permanently bonded PVC laminate; a finish that make it unique in the world: a mix of tradition & advanced technology.

This "intelligent" and well engineered use of quality materials allows a reduction in the volume of the materials themselves, guaranteeing the above quoted savings.
Detailed analysis (in the tables) illustrates the variability of the energy requirement for the production of the different building materials used:

> concrete: 1.17 MJ / kg
> reinforcement irons for concrete : 24.6 MJ / kg
> stainless steel for Myrtha wall structure: 56.7 MJ / kg
> PVC lining : 68.6 MJ / kg
> ceramic tiles: 9 MJ / kg
> glue for tiles: 87 MJ / kg
> epoxy filler for tiles: 139.3 MJ / kg

Simple multiplication of these coefficients by volume determines the result and allows comparison.

Transport is also a consideration and the advantage of a prefabricated solution is clear when considering for example that an Olympic pool (50x25x2m) with Myrtha structure needs only two 40' containers. The saving is evident if compared with a concrete solution that requires a large number of truck deliveries with their related CO_2 emissions. This is still true when the project is very far from the Myrtha manufacturing plant and therefore transported by sea: the emissions for the maritime transport account only for 0.2 MJ/ton/km while the transport of concrete by truck has emissions for as much as 2.5 MJ/ton/km.

Comparative analysis on pool with dimensions: ***25x25x2 m***

Quantity of material		Myrtha	Concrete
Concrete	[kg]	123.570	277.328
Concrete reinforcing steel	[kg]	8.982	32.552
Stainless steel (pools walls, buttress, gutters)	[kg]	8.890	-
Adhesive for tiles	[kg]	94	3.329
Tiles	[kg]	720	13.307
Epoxy joint filler	[kg]	61	2.154
Polyester resin for the gutter	[kg]	-	102
Hard PVC sheet for the walls Myrtha	[kg]	186	-
Reinforced PVC floor membrane	[kg]	1.188	-
Adhesive water based solvent	[kg]	10	-
Formwork	[kg]	-	521

Total embodied energy	Coeff. Enbodied energy [MJ/kg]		Myrtha	Concrete
Concrete	1,17	[MJ]	144.577	324.474
Concreete reinforcing steel	24,60	[MJ]	220.958	800.780
Stainless steel (pools walls, buttress, gutters)	56,70	[MJ]	504.063	-
Adhesive for tiles	87,00	[MJ]	8.178	289.623
Tiles	9,00	[MJ]	6.480	119.763
Epoxy joint filler	139,30	[MJ]	8.498	300.053
Polyester resin for the gutter	139,30	[MJ]	-	14.209
hard PVC sheet for the walls Myrtha	68,60	[MJ]	12.760	-
Reinforced PVC floor membrane	68,60	[MJ]	81.497	-
Adhesive water based solvent	87,00	[MJ]	870	-
Formwork	165,00	[MJ]	-	85.965

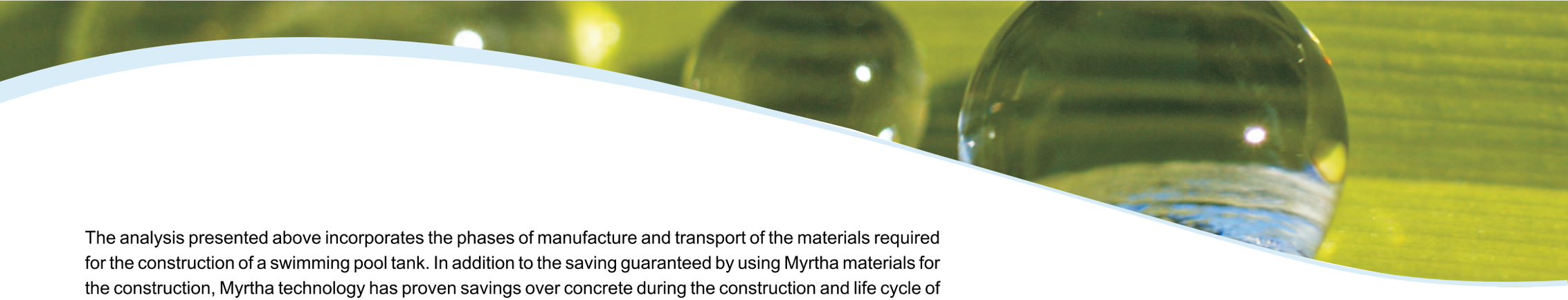
		Myrtha	Concrete
TRANSPORT	[MJ]	84.315	161.469
TOTAL EMBODIED ENERGY	[MJ]	1.072.196	2.096.336
GREENHOUSE GAS EMISSIONS	[kg CO_2]	105.075	205.441
REDUCTION IN CO_2 EMISSIONS		**49%**	

Comparative analysis on pool with dimensions: ***50x25x2 m***

Quantity of material		Myrtha	Concrete
Concrete	[kg]	558.576	1.222.387
Concrete reinforcing steel	[kg]	17.116	60.316
Stainless steel (pools walls, buttress, gutters)	[kg]	13.335	-
Adhesive for tiles	[kg]	141	6.201
Tiles	[kg]	1.080	24.789
Epoxy joint filler	[kg]	97	4.282
Polyester resin for the gutter	[kg]	-	153
Hard PVC sheet for the walls Myrtha	[kg]	279	-
Reinforced PVC floor membrane	[kg]	2.375	-
Adhesive water based solvent	[kg]	14	-
Formwork	[kg]	-	773

Total embodied energy	Coeff. Enbodied energy [MJ/kg]		Myrtha	Concrete
Concrete	1,17	[MJ]	653.534	1.430.193
Concreete reinforcing steel	24,60	[MJ]	421.041	1.483.764
Stainless steel (pools walls, buttress, gutters)	56,70	[MJ]	756.095	-
Adhesive for tiles	87,00	[MJ]	12.246	539.510
Tiles	9,00	[MJ]	9.720	223.103
Epoxy joint filler	139,30	[MJ]	13.540	596.510
Polyester resin for the gutter	139,30	[MJ]	-	21.313
hard PVC sheet for the walls Myrtha	68,60	[MJ]	19.162	-
Reinforced PVC floor membrane	68,60	[MJ]	162.925	-
Adhesive water based solvent	87,00	[MJ]	1.240	-
Formwork	165,00	[MJ]	-	127.463

		Myrtha	Concrete
TRANSPORT	[MJ]	153.348	296.753
TOTAL EMBODIED ENERGY	[MJ]	2.202.851	4.718.608
GREENHOUSE GAS EMISSIONS	[kg CO_2]	215.879	462.424
REDUCTION IN CO_2 EMISSIONS		**53%**	



The analysis presented above incorporates the phases of manufacture and transport of the materials required for the construction of a swimming pool tank. In addition to the saving guaranteed by using Myrtha materials for the construction, Myrtha technology has proven savings over concrete during the construction and life cycle of the product. Namely:

- The installation phases of a Myrtha with respect to a traditional pool are much quicker and do not require the use of heavy machinery.
- Maintenance (the necessity to maintain waterproofing, to replace the grout or the tiles themselves …) is practically zero in the first 20-30 years.
- The possible disposal of the materials at the end of their life cycle is simple and with a significantly lower waste of energy with regards to a reinforced concrete pool.

Myrtha Technology is Green!

This comparison confirms Myrtha Technology as simply the best choice when building a swimming pool.
Additional characteristics:

- Reliable pre-engineering product
- Meticulous quality control
- Perfect precision in lengths and levels
- Constructed anywhere
- Built to any shape or size
- Realization of any shape and dimension
- 50 years of experience

Myrtha Technology has been chosen for projects where environmental sustainability was a significant requirement (2008 Beijing Olympic Games, 2012 London Olympic Games, etc).

1000 -10/2010

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If conservation of energy and the global environment is a concern to you, please ask our Company for a comparative calculation on your next pool; you will see that concrete is not an option!