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INTRODUCTION

In order to provide better quality and unique products for our customers, we have developed a new epoxy called Araldite® 2015-1, which is a variation of our standard Araldite® 2015. This epoxy has a lower viscosity and a longer curing time than standard Araldite® 2015. It is mainly used in the automotive industry. The main difference between Araldite® 2015-1 and standard Araldite® 2015 is the addition of a hardener which reduces viscosity.

RESULTS & DISCUSSION

The following table shows the properties of Araldite® 2015-1 compared to standard Araldite® 2015. The curing conditions are 114°C x 1 hour under normal atmospheric conditions.

Functional properties

	Hardener HV 5309-1 (Araldite 2015)	Hardener HV 5309-2 (Araldite® 2015-1)
Aspect	Brown liquid	Brown liquid
Viscosity	Very viscous	Very viscous
Mix Ratio	1:1:1:1 and void	1:1:1:1 and void

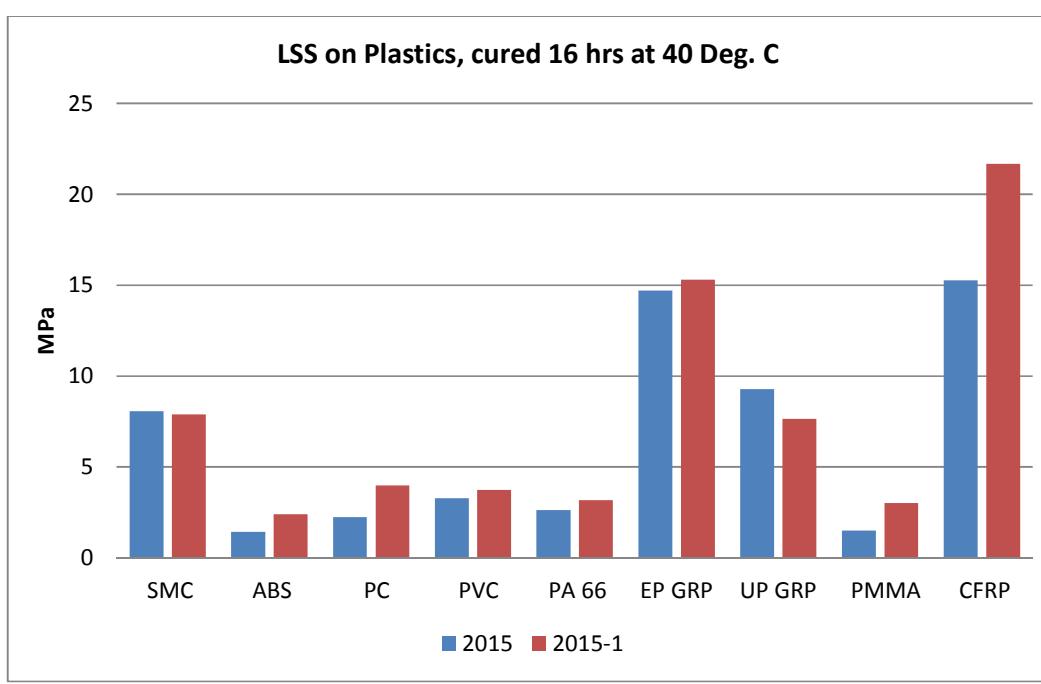
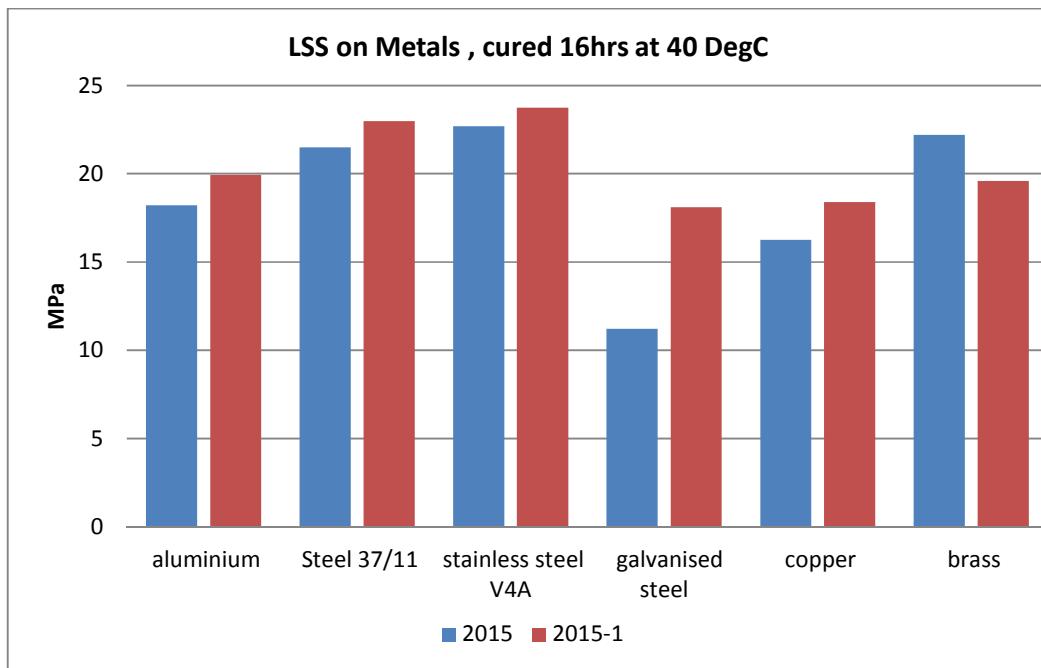
Reactivity

	Araldite® 2015	Araldite® 2015-1
Pot life (100 g)	8 hours	4 hours

The reaction rate is faster at higher temperatures and a shorter curing time.

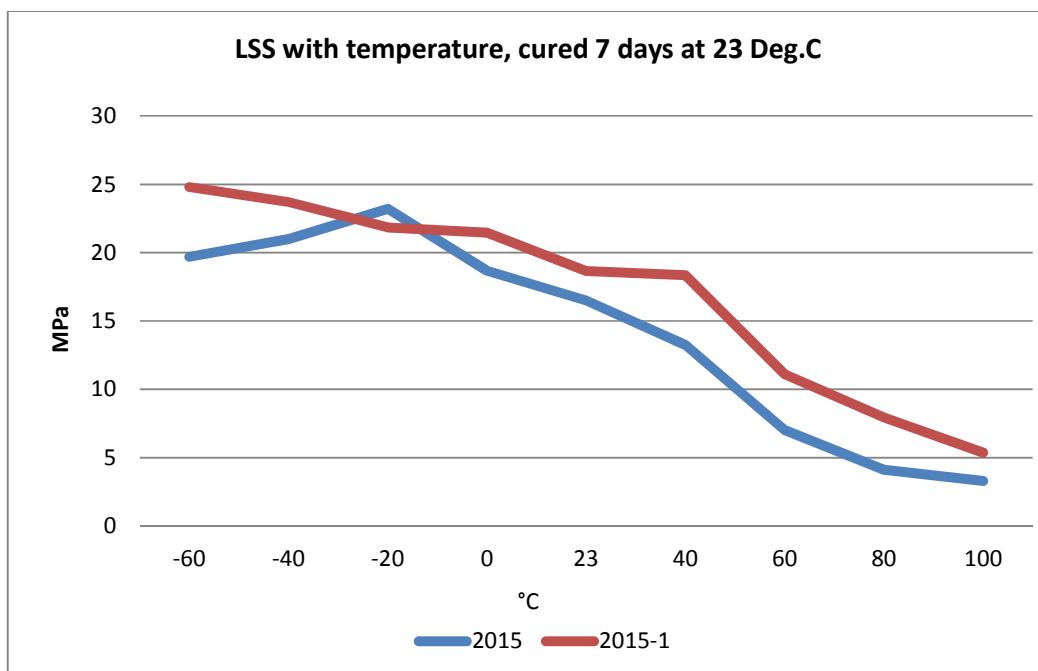
Time to reach Lap Shear Strength	Araldite® 2015	Araldite® 2015-1
1 MPa @ 1 °C	over	over
1 MPa @ 10 °C	1 hour	1 hour
1 MPa @ 20 °C	4 hours	4 hours
1 MPa @ 30 °C	8 hours	8 hours
1 MPa @ 40 °C	1 hour	1 hour
1 MPa @ 50 °C	over	over

Lap Shear Strength (LSS) on different substrates (ISO 4587)

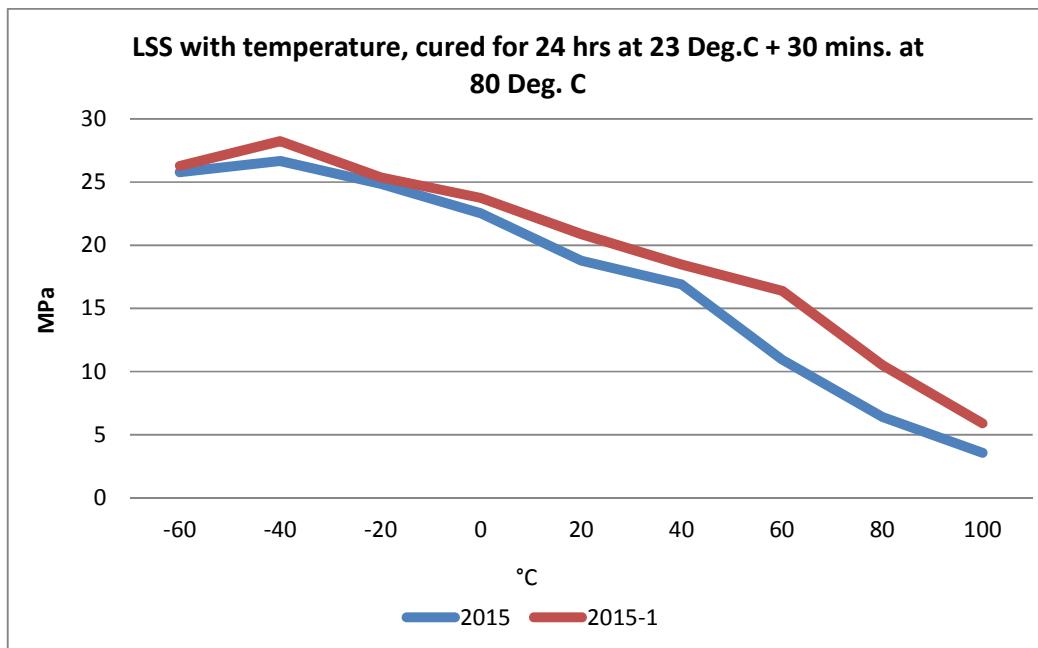


Lap Shear Strength vs temperature (ISO 4587)

Cure 7 day at T



Cure 4 hour at T °C + 1 hr. aging at 80°C



Tensile properties (ISO 527)

Curing 1 hour at 40°C

	Tensile modulus (MPa)	Tensile strength (MPa)	Elongation at break (%)
Araldite® 2015	1 1 MPa	4	.7
Araldite® 2015-1	1 1 MPa	1	4.

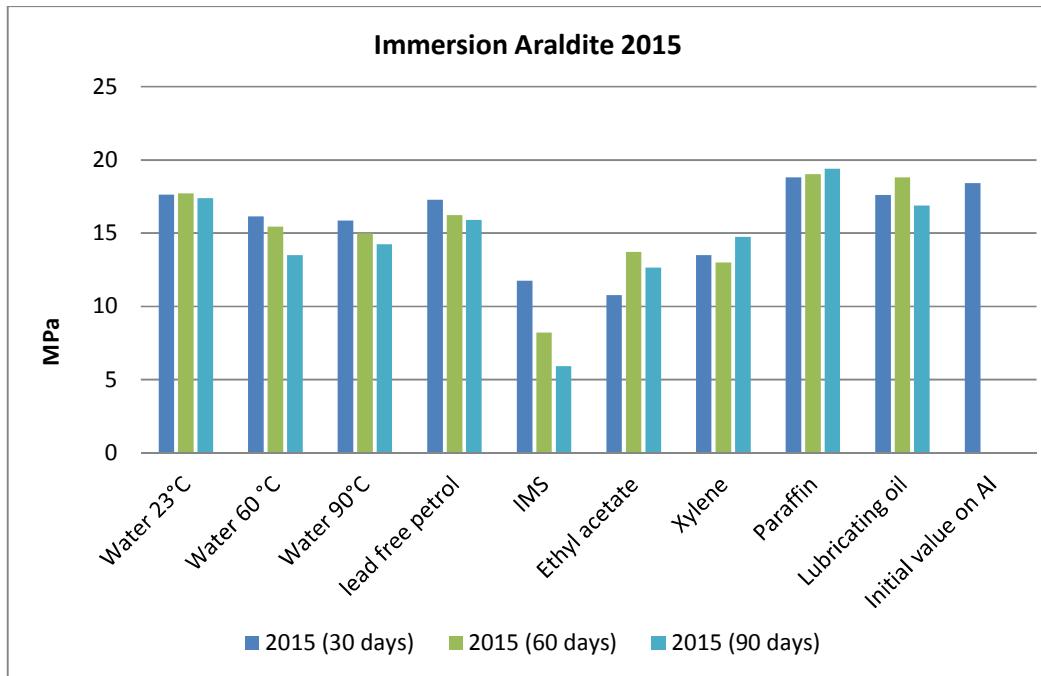
Flexural properties (ISO 178)

Curing 1 hour at 40°C

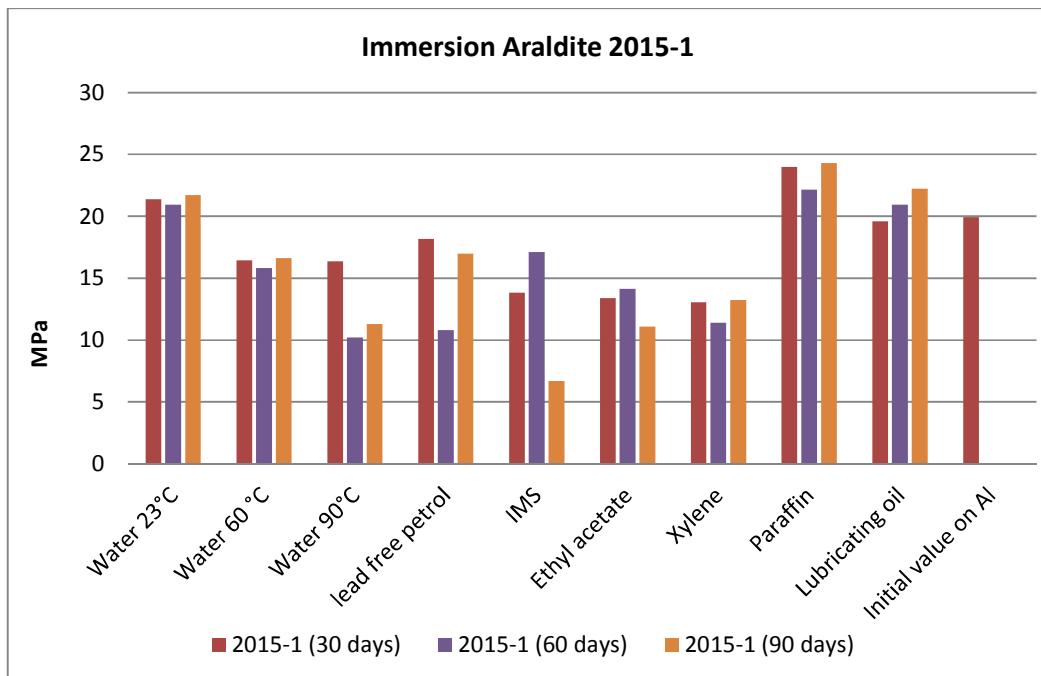
	Flexural modulus (MPa)	Flexural strength (MPa)
Araldite® 2015	1 1	

Chemical resistance : ageing tests - immersion in different media

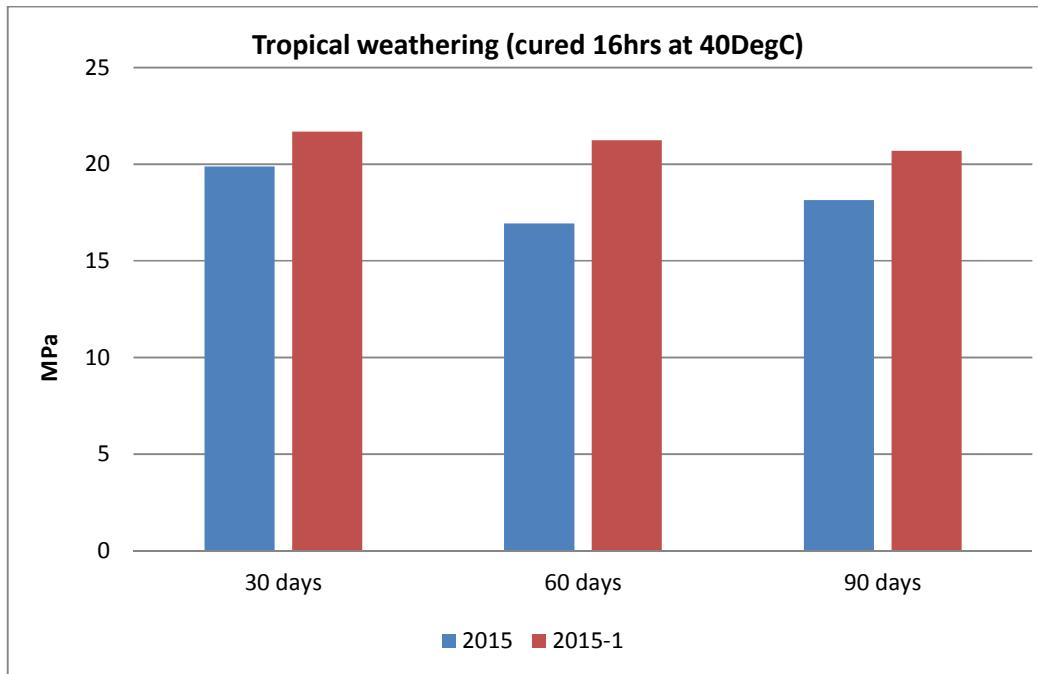
Araldite® 111
Curing 1 hour at 40°C



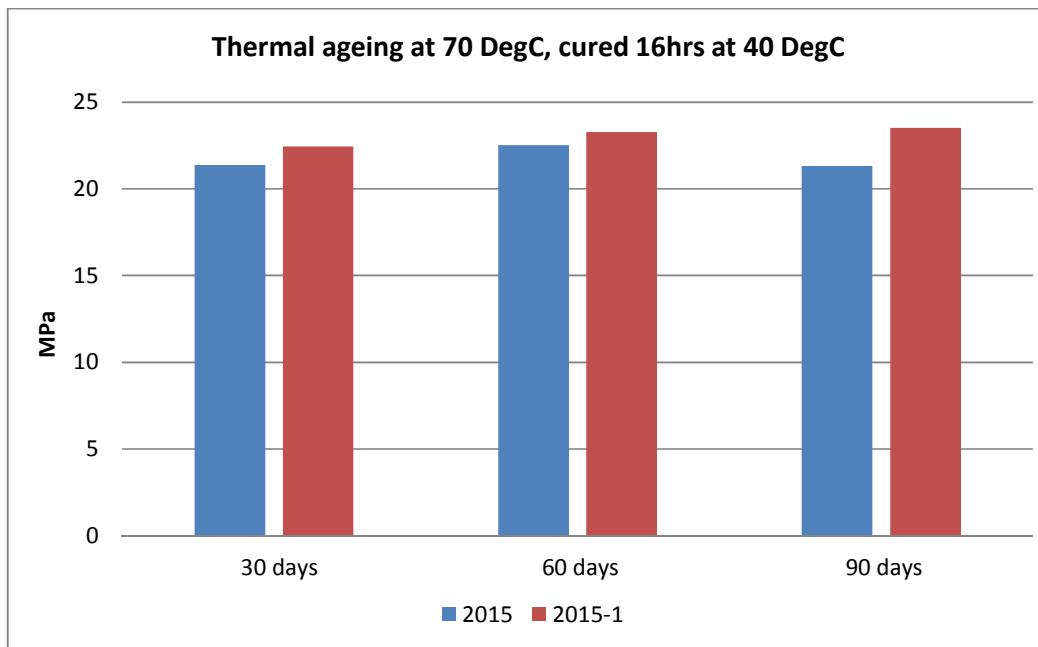
Araldite® 111-1
Curing 1 hour at 40°C



Climatic testing : tropical weathering (40°C/92% humidity)



Thermal resistance : heat ageing at 70°C



CONCLUSION & RECOMMENDATIONS

We can conclude that Arad® 11-1 directly fulfills Arad® 11, n° 10, 11, 12, 13 and 14 and can also fulfill 10, 11, 12, 13 and 14 our customer's requirements. A certificate of compliance is issued.



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