

BLUESIL ESA 7244 A & B

Description	BLUESIL ESA 7244 A&B is a liquid two-component, polyaddition heat curing silicone elastomer. After polymerisation BLUESIL ESA 7244 A&B forms a flexible adhesive film or gasket which is particularly resistant to thermal, climatic and environmental attack.																			
Examples of applications	BLUESIL ESA 7244 A&B is intended for bonding to metal and plastic surfaces in the automotive and household electrical goods industries: <ul style="list-style-type: none"> • Sealing and protection of electronic casings by jointing and potting techniques. • Insulating of electrical motors used for cooling and general control purposes. Starter motors, alternators, etc. • Silk screening of gaskets, especially cylinder head gaskets. 																			
Key benefits	<p><u>In terms of processing</u></p> <ul style="list-style-type: none"> • Solventless: no special precautions required for the workstation environment. • Quick curing: a few minutes at 120 – 150 °C. • Long pot life at room temperature. • Low viscosity enabling easy coating and covering. • Self-levelling. <p><u>In terms of economic and performance aspects</u></p> <ul style="list-style-type: none"> • Fully retains physical, chemical and electrical properties over a range of temperatures between – 45°C and + 200°C. • Instant, primerless adhesion on all surfaces. • Outstanding resistance to splashing and vapor from cooling fluids, engine and gearbox oils. • Outstanding resistance to climatic and ageing agents ensuring that the product carries out its functions for a long time. • Good dielectric properties. 																			
Typical properties	<p>1 - <u>Before curing / Curing</u></p> <p>BLUESIL ESA 7244 A&B can be applied using a two component dispenser with a 50/50 mixing ratio. In the case of manual mixing, degas under vacuum conditions (3-5 kPa) before use.</p> <p>The viscosity of the blended product is ≈ 65 000 mPa.s</p> <p>At room temperature (23°C), the pot life of the blended product is approximately 16 hours. Curing of BLUESIL ESA 7244 A&B takes place at a temperature of between 80°C and 200°C. As an indication, the curing time at 150°C is approximately 10 minutes. The curing reaction can be inhibited by contact with substances containing sulphur, amines and metal salts.</p> <p>2 - <u>Properties before curing</u></p> <p>The properties of the 2 components A and B of BLUESIL ESA 7244 are given in the following table.</p> <table border="1" data-bbox="438 1702 1484 2063"> <thead> <tr> <th><i>Properties</i></th> <th>BLUESIL ESA 7244 A</th> <th>BLUESIL ESA 7244 B</th> </tr> </thead> <tbody> <tr> <td>Aspect</td> <td>Viscous liquid</td> <td>Viscous liquid</td> </tr> <tr> <td>Colour</td> <td>Beige</td> <td>Blue</td> </tr> <tr> <td>Odour</td> <td>weak</td> <td>weak</td> </tr> <tr> <td>Volumetric dosing</td> <td>50</td> <td>50</td> </tr> <tr> <td>Specific gravity (at 25°C, g/cm³, approx.)</td> <td>1.27</td> <td>1.23</td> </tr> </tbody> </table>		<i>Properties</i>	BLUESIL ESA 7244 A	BLUESIL ESA 7244 B	Aspect	Viscous liquid	Viscous liquid	Colour	Beige	Blue	Odour	weak	weak	Volumetric dosing	50	50	Specific gravity (at 25°C, g/cm³, approx.)	1.27	1.23
<i>Properties</i>	BLUESIL ESA 7244 A	BLUESIL ESA 7244 B																		
Aspect	Viscous liquid	Viscous liquid																		
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Viscosity (at 25°C, mPa.s, approx.)	100 000	45 000
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(*) Measured with Malvern viscometer – Shear rate of 1,1 s⁻¹ for A part and 0,5 s⁻¹ for B part.

3 - Mixing the two components

BLUESIL ESA 7244 A catalyst	50 parts
BLUESIL ESA 7244 B	50 parts
Pot life of mixture (at 23°C, hours)	> 16
Viscosity of the mix (at room temperature, mPa.s, approx.)	65 000

4 - Mechanical properties of the cured material

Measured after curing 10 min at 150 °C + 30 min at 23°C

4-1 Mechanical properties

Properties	BLUESIL ESA 7244 A&B
Specific gravity (at 23°C, Standard ISO 2781, approx.)	1.25
Shore A hardness (Standard ISO R 868, approx.)	50
Tensile strength (Standard ISO R 37 (H2), MPa, approx.)	5.5
Elongation at break (Standard ISO R 37 (H2), %)	> 160

4-2 Adhesion properties

On Polyamide 6-6 (1 mm thick joint)	
Shear strength (MPa, approx.)	1.5
Type of failure	100 % cohesive

On Aluminium AG 3 (1 mm thick joint)	
Shear strength (MPa, approx.)	3.0
Type of failure	100 % cohesive

On head gaskets (fibre)	
Type of failure	100 % cohesive

On other surfaces, self adhesion on: Enamel, ceramics and many plastic surfaces.

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4-3 Thermal properties

Gluing application:

These tests have been performed to be closed to bonding applications with thin residual thickness of the glue (2 to 300 µm) between substrates.

Temperature range in continuous use (on a lap shear strength over aluminium AG 3, 1000 h *)	- 60 to + 225°C *
Maximum recommended peak temperature for use (on a lap shear strength over aluminium AG 3, 72h *)	+ 250°C *

Head gasket application:

Cooling fluid resistance (72 h to 120°C in the cooling fluid in consideration*)	
Variation in Shore A hardness	< 10 %

Oil resistance (72 h to 150°C in oil ASTM3 *)	
Variation in Shore A hardness	< 10 %

* These values are given for information purposes only.

Thermal conductivity (Standard NFX 10021, at 30°C, W/m.K, approx.)	0.40
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4-4 Dielectric properties

Properties	BLUESIL ESA 7244 A&B
Dielectric strength (Standard NFC 26225, kV/mm, approx.)	19
Dielectric constant at 1 MHz (Standard NFC 26230, approx.)	2.9
Dielectric dissipation factor at 1 MHz (Standard NFC 26230, approx.)	3.10^{-3}
Volume resistivity, ohm.cm (Standard NFC 26215)	$1.5.10^{15}$

4-5 Fire resistance

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Fire rating <i>(Standard IEC60695-11-10, 3 mm thick specimen)</i>	FV-1
Oxygen index <i>(Standard NFT 51071, %, approx.)</i>	40
M rating <i>(Standard NFF 16101)</i>	M1
F rating <i>(Standard NFF 16101)</i>	F0

4-6 Inflammability
 (Coated at 40 g/m² on polyamide 470 dtex 6.6 18/18)

Flame propagation <i>(Standard FMVSS 302)</i>	Self-extinguishing
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Please note: The typical properties are not intended for use in preparing specifications. Please contact our local Sales Department for assistance in writing specifications.

Instruction of use	Please consult your local ELKEM SILICONES sales office.
Regulation	Please consult your local ELKEM SILICONES sales office.
Limitations	Please consult your local ELKEM SILICONES sales office.
Packaging	<ul style="list-style-type: none"> • BLUESIL ESA 7244 A is available in <ul style="list-style-type: none"> ○ Drum of 25 KG (55.13 LB) • BLUESIL ESA 7244 B is available in <ul style="list-style-type: none"> ○ Drum of 25 KG (55.13 LB)
Storage and shelf life	When stored in its original packaging: BLUESIL ESA 7244 A may be stored for up to 12 months from its date of manufacturing. BLUESIL ESA 7244 B may be stored for up to 12 months from its date of manufacturing. Comply with the storage instructions and expiration date marked on the packaging. Beyond this date, Elkem Silicones no longer guarantees that the product meets the sales specifications.
Safety	Please consult the Safety Data Sheet of: BLUESIL ESA 7244 A and BLUESIL ESA 7244 B

Visit our website www.elkem.com/silicones/

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