WITH SYNTHENE IN A MERCURY-FREE RAPID PROTOTYPING INDUSTRY

» Most appreciated classics remain with the high-end ABS-like PR700 and the flame-retardant PRA794

» Other notorious resins have been redesigned in accordance with REACH 2017: crystal-clear products and the elastomers

EVERLASTING TRANSPARENCY TRADITION

» New generation of UV-stable mercury-free materials

» An extended shelf-life for an easier storage management

» A specific combination of thermal, mechanical and optical properties for clear projects like car lights

IN ACCORDANCE WITH

REACH (SVHC list in force)	
RoHS	2011/ 65/ EU, 2015/ 863/ EU & 2017/ 2102/ EU
End-of-life vehicle directive	2000/ 53/ EC
WEEE Directive	2002/ 96/ EC
2000/11/EC Directive	2000/ 11/ EC
Recycling compliance	IMDS (mdsystem.com)

NEW! PR500 : QUICK & STRONG

» A high impact resistance and elongation at break without post-curing

» Your daily colourable ABS-like for a large number of applications

PR7 SERIES : PERFORMANCE MADE SIMPLE

» Based on the technological assets of PR700: Long mould-life, high thermal, mechanical and chemical properties

» Declined in versatile rigidities & colourabilities

» More and more ease for the user

FLAME RETARDANT GRADES FOR SPECIFIC STANDARDS

» High flame retardancy to reach the UL94 5VA and FAR 25 requirements

» Low aggressiveness to silicone moulds

» Halogen-free for a limited toxicity

NEW! PRF100 : FOODGRADE

» Compliant with a temporary and repeated dry, humid and greasy food contact

» Transparent & colourable

ELASTOMERS FOR ALL APPLICATIONS

» An elastomer system to reach top properties and offering a wide range of hardnesses between 40 Shore A and 55 Shore D

» Versatile processing and curing options: with machine or hand-mixing, curing at room temperature or with an oven

» Good overall mechanical properties, chemical and hydrolysis resistance

THE NEEDED BASICS

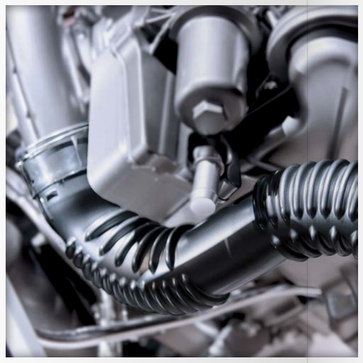
» Those resins are convenient for simple jobs and short series

» Declined in various rigidities: from 1700 MPa to 2900 MPa

ABOUT SYNTHENE

The innovative chemical company, located in France, was founded in 1958. SYNTHENE provides specific formulation and high quality industrial solutions. SYNTHENE places a particular emphasis on offering high-performance products, with cautiously selected raw materials from trustworthy manufacturers.

All SYNTHENE Prototyping resins meet the current requirements of REACH and SVHC.



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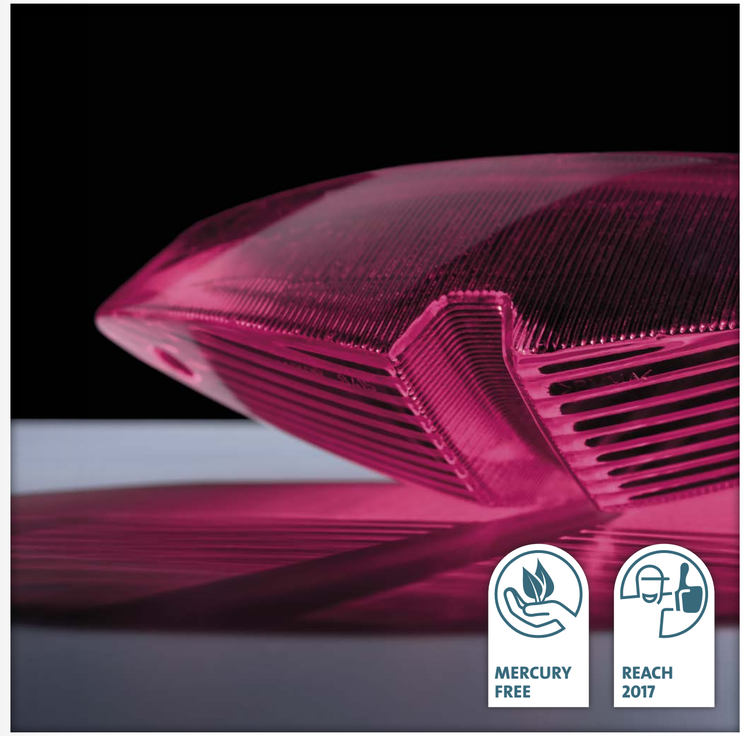
RAPID PROTOTYPING RESINS

SYNTHENE
PRODUCT OVERVIEW 2018.11

INNOVATION AND QUALITY IN VACUUM CASTING



RAPID PROTOTYPING RESINS
A FULL REACH 2017 COMPATIBLE RANGE

» Old classics and updated hits for a comprehensive pallet of solutions

» Mercury-free & safer materials

» High standards regarding mechanical, thermal, chemical and UV resistance

SYNTHENE IS A COMPANY CERTIFIED BY

ISO 9001:2008
BUREAU VERITAS Certification

SYNTHENE 2018–11–07 001 EN

RAPID PROTOTYPING RESINS

SYNTHENE
PRODUCT OVERVIEW 2018.11[1]

INNOVATION AND QUALITY IN VACUUM CASTING

			RUBBER & HDPE				HDPE, PP & ABS PR7 SERIES				ABS, PA & PC				TRANSPARENT & UV-STABLE				FLAME RETARDANTS		FOODGRADE	
						NEW!							NEW!					NEW!			NEW!	
SYNTHENE PRODUCT TYPE			HPE ELASTOMER SYSTEM				PR740	PR777	PR700	PR752	PR14008	PR2000	PR500	PR2900	PRC1710	PRC1719	PRC1810	PRC1819	PRA794	PRA730	PRF100	PRODUCT TYPE
Hardness	(Shore A/ D)		40A 50A	60A 70A	85A 35D	55D	70D	75D	82D	87D	76D	80D	85D	86D	87D	87D	85D	82D	80D	81D	82D	Hardness
Counter type of [2]			rubber				HDPE/ PP	HDPE/ PP	ABS	ABS	ABS	ABS	ABS	PA/ PC		ABS/ PC/ PMMA			ABS	ABS	ABS	Counter type of
Fire rated type									UL 94 HB						UL 94 HB	UL 94 HB	to be tested	to be tested	UL 94 5VA	FAR 25		Fire rated type
Colour of the cured material			transparent amber [3]				golden transp. [3]	milky/ beige [3]	black	golden transp. [3]	milky/ white	milky/ white	golden transp.	golden transp.		clear transparent			black/ brown	dark grey	clear transparent	Colour
Colourability [7]																						Colourability
Density	(g/ cm3)						1,11	1,13	1,14	1,16	1,12	1,13	1,16	1,17	1,1	1,1	1,1	1,10	1,16	1,2	1,05	Density
Flexural modulus	(MPa)	ISO 178					580	900	2300	2200	1700	2000	2700	2900	2200	2200	2200	2100	1500	2100	2000	Flexural modulus
Maximum flexural strength	(MPa)	ISO 178					24	35	80	96	62	80	100	119	84	84	88	80	65	63	71	max. flex. strength
Elongation at break	(%)	ISO 527					> 50	35	13	5	5	5	24	7	6,5	6,5	6,5	14	5	4	14	Elong. at break
Tensile strength	(MPa)	ISO 527-1					> 20	32	60	75	71	57	63	78	60	65	65	60	60	41	47	Tensile strength
Impact resistance	(kJ · m^{-2})	ISO 179					24 (notched)	91	60	11,4	23	30	69	70	48	48	84	90	20	16	102	Impact resistance
Elongation at break by 23 °C	(%)	ISO 37	270	500	900	325																Elong. at break 23° C
Tear resistance	(kN · m^{-1})	ISO 179	11,5	27	54	70																Tear resistance
Heat deflection Temperature [4]	(C°)	ISO 75					96	110	130	150	75	101	93	92	93	93	84	86	130	130	70	HdT
Working temperature	(°C)		-40/+90	-40/+90	-40/+90	-40/+90																Working temp.
Mixing ratio	(by weight P:Iso)		100:100	50:16:100	32:100	75:100	120:100	100:100	80:100	60:100	50:100	50:100	40:100	50:100	60:100	60:100	56:100	56:100	80:100	100:72	100:130	Mixing ratio
Mix viscosity at 25°C	(mPa · s)		2000	2700	3200	1300	1000	715	600	1000	250	350	600	400	400	400	450	450	1000	2500	420	Mix viscosity
Pot life by 25°C	(min)		60	50	40	18	7.5	10	6 – 7	6 – 8	5	6	5	6 – 7	9	19	9	19	7 – 8	8	13	Pot life
Demoulding time by 70°C	(min)		180	180	180	120	40	45	45 – 60	50	40 – 60	60	45	45	80	150	120	180	45	45	960	Demoulding time
Linear shrinkage thickness by 23°C	(mm/m)						3	3	2			3							2	2		Linear shrinkage
App. maximum wallthickness	(mm)		100	80	50	20							5						20		10	wallthickness
Mould life in silicone [5]	(nb of castings)		40+	40+	40+	40+	30 – 50	30 – 50	30 – 60	30 – 50	15 – 20	15 – 20	20	15 – 20	10 – 15	10 – 15	20	20	30 – 50	30+	20	Mould life
Standard packaging	(kg)		various				13,2	20	18	16	15	15	11,2	15	9,6	9,6	10,02	10,02	18	17,2	11,7	Packaging
Alternative packaging on request	(kg)		various					12	10,8			12		12	16	16	16,8	16,8			17,7	Alt. Packaging
Shelf life [6]	(months)		18				18	18	18	18	12	12	6	12	12	12	12	12	18	12	9	Shelf life
Annotations			› Curing at room temperature or in oven › Very good mechanical properties				› Flexible product, colourable, suitable for living hinges › Long mould life	› Very strong material, colourable, intermediary rigidity › Long mould life	› Very good all-round properties › Extremely long mould life	› Very high thermal and mechanical properties › Long mould life	› ABS like all-round material › Colourable › Limited exothermy	› ABS like all-round material › Colourable › Good mechanical properties	› Very good mechanical properties at demoulding › Colourable	› Very rigid material, with high E-Modulus › Countertype of glass filled materials › Very good colourability	› Short demoulding time › High thermal resistance › Transparent like glass	› Long potlife › High thermal resistance › Transparent like glass	› Limited aggressiveness against silicone › Short demoulding time › Transparent like glass	› Limited aggressiveness against silicone › Big wall thickness compatible › Transparent like glass	› Flame retardant according to UL94 5VA › Excellent flame retardancy › Available UL94 5VA test report › Long mould life	› Flame retardant according to FAR 25	› Suitable for temporary & repeated food contact › Colourable	Annotations

1 The exact data are available in our TDS. The thermal and mechanical properties have been tested under specific conditions of curing and post-curing

2 Counter type of plastic once the resin is cured

3 Under UV action, the colour tends to darken

4 After heat treatment

5 Silicone mould life: according to our experience, depending on the mould geometry, surface, demoulding time, kind of silicone, etc.

6 On non-open jerrycans or bottles

7 All the colours indicated in this document are illustrative and not contractual

abrasion resistant · chemical resistant · flexible · food grade · heat resistant · impact resistant · tear resistant · transp. & UV stable · one iso fits all · long mould life · mercury free · long shelf life · less smell

Synthene