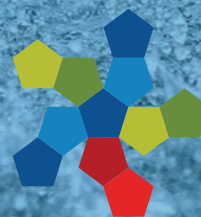


STYRENE BUTADIENE RUBBER FOR ADHESIVES AND SEALANTS



Dynasol
Group

dynasolgroup.com





Dynasol Products For Adhesives and Sealants

Dynasol Group has over 40 years of experience as a supplier of polymers to the Adhesive & Sealant industry.

We are a Global supplier with a wide portfolio of SBS, SEBS, SSB, and Hot SBR products that are used in applications such as hot melt adhesives and solvent borne formulas for building and construction, PSA, non-PSA packaging, specialty labels, automotive sealants and FDA grade food packaging sealants.

Our polymer know-how has positioned Dynasol Group as one of the primary global suppliers of high purity FDA compliant grades of SBS, SEBS and Hot SBR products.

These products are produced to meet stringent requirements for purity and sensory factors including odor and taste performance and are 100% compliant with all REACH requirements with zero levels of Nonylphenol-type residuals. The emphasis on purity and quality assures a high standard of performance with clear benefits for all applications with exposure to consumer level users.

Dynasol Groups' global footprint includes manufacturing plants and Technical centers located strategically in China, Europe and North America to supply and support our clients worldwide.

It is our commitment to continue to develop new and improved innovative products designed to enhance the value and performance of our customers products.

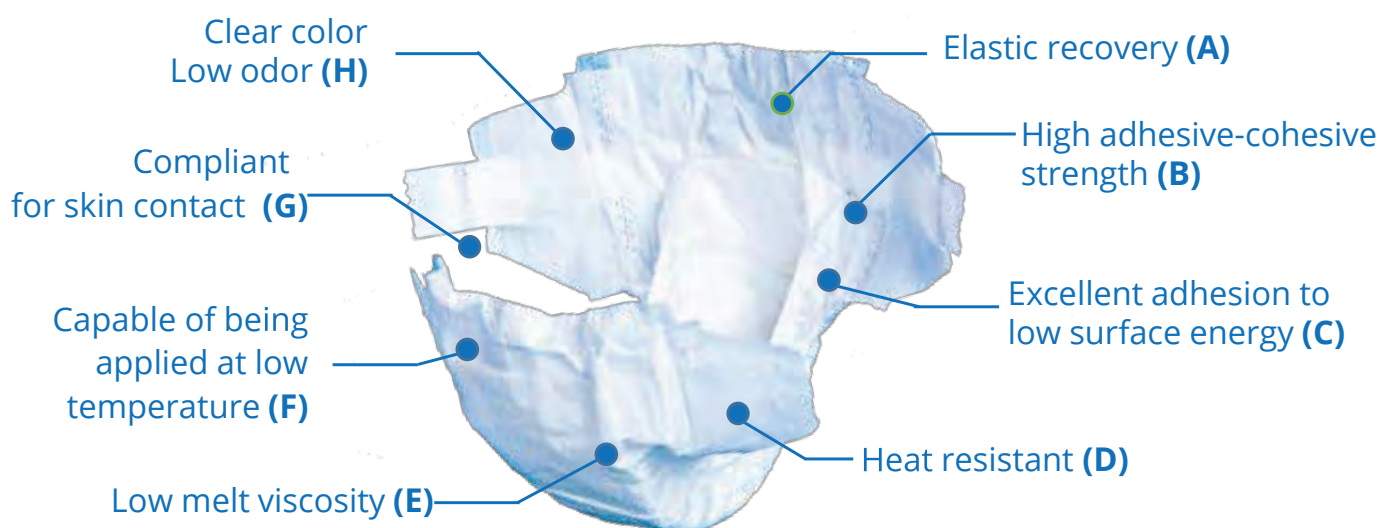
For more information about our portfolio please visit dynasolgroup.com

Hygiene Industry

The hygiene industry is a special segment that demands high quality in their adhesive uses for diaper and feminine care assembly.

Dynasol Group has an excellent portfolio of styrene-butadiene copolymers to meet customer needs and market trends.

Adhesive Requirements



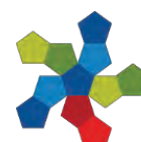
Dynasol recommended grades for the Hygiene Industry

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Calprene 743X	Linear SBS	43	360 ¹	23 ⁴								
Calprene 540	Linear SBS	40	600 ¹	5.5 ⁵								
Solprene 4428X	Radial SBS	40	430 ¹	10 ⁵								

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Dyne 154	Linear SBS	40	310 ¹	22.5 ⁵	⬤	⬤	⬤	⬤	⬤	⬤	⬤	⬤
Calprene H6105X	Linear SEBS	30	---	26 ⁶	⬤	⬤	⬤	⬤	⬤	⬤	⬤	⬤

Requirement performance ⬤ Excellent ⬤ Good ⬤ Regular

Condition test 1- 25% @ 25°C // 2- 30% @ 25°C // 3- 20% @ 25°C // 4- 200°C/5Kg // 5- 190°C/5Kg // 6- 230°C/2.16Kg

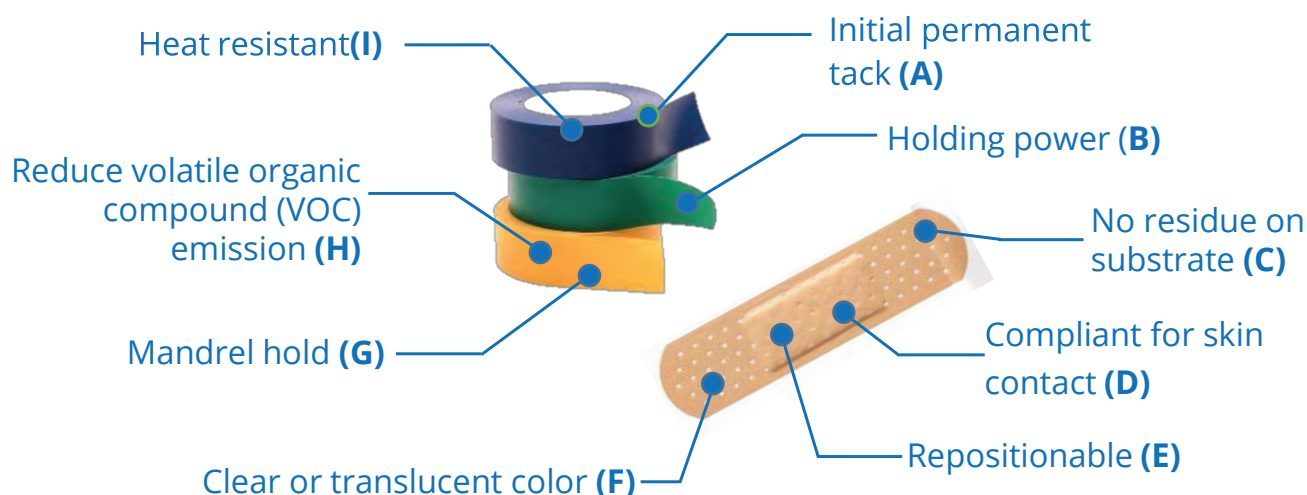


Tapes

Tapes is an extensive market segment due to the versatile applications from medical, office to industrial applications. Because of this, the adhesives need to meet a series of requirements of performance and regulations to ensure good performance.

Dynasol Group provides a product portfolio offering flexibility for adhesive formulations, with a versatile range of adhesive performance because of their unique combination of adhesive and cohesive strength over a broad temperature range. In addition to complying with FDA and European regulations for contact with skin and food.

Adhesive Requirements



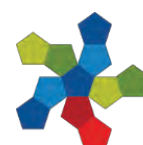
Dynasol recommended grades for Tapes

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H	I
Emulprene 1011	HSBR	23.5	3000-4000 ¹	---	●	◐	◐	--	◐	◐	●	◐	◐
Emulprene 1012	HSBR	23.5	150-300 ²	---	●	◐	●	--	◐	◐	●	◐	◐
Emulprene 1013	HSBR	43.5	550-750 ³	---	●	◐	●	--	◐	◐	●	◐	◐
Emulprene 1009H	Partially Cross-linked HSBR	23.5	50 ⁴	---	◐	●	●	--	◐	◐	●	◐	◐

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H	I
Calprene H6180X	Linear SEBS	15	---	9 ⁷	●	◐	◑	●	◐	●	●	●	●
Calprene H6182X	Linear SEBS	15	---	24 ⁷	●	●	◐	●	●	●	●	●	◐
Solprene 1205/1217	Linear SBR	25	4000 ⁵	---	●	◑		●	●	●	●	●	◐
Solprene 411	Radial SBS	30	20000 ⁶	---	◑	◐	◐	●	◑	●	●	●	◐
Solprene 416	Radial SBS	30	2200 ⁶	---	●	●	◐	●	◐	◐	●	◐	◐
Solprene 4428X	Radial SBS	40	430 ⁶	10 ⁸	●	●	◐	●	◑	◐	●	◐	◐

Requirement performance ● Excellent ◐ Good ◑ Regular

Condition test 1- 15% @ 25°C // 2- 5% @ 25°C // 3- 10% @ 25°C // 4- 3.68% @ 25°C
5- 30% @ 25°C // 6- 25% @ 25°C // 7- 230°C/2.16Kg // 8- 190°C/5Kg

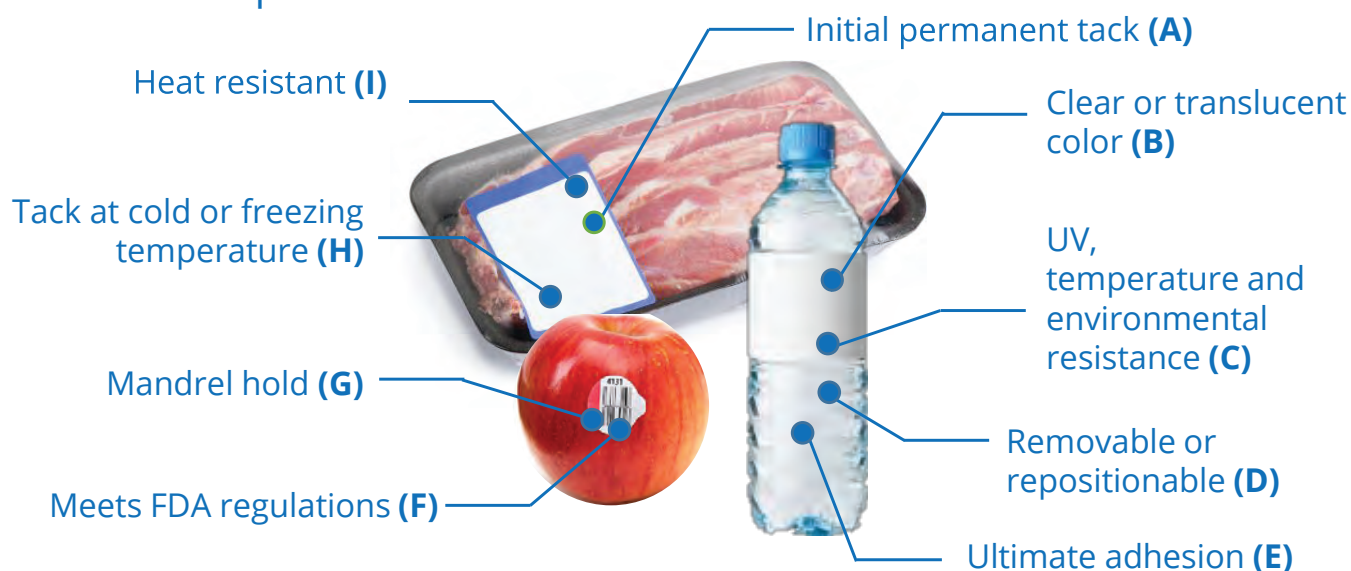


Labels

The labels industry requires a great deal of versatility in pressure sensitive adhesives (PSAs) in order to satisfy the broad range of properties required for various products.

Dynasol Group has a product portfolio offering flexibility for adhesive formulations, providing a versatile range of adhesive performance because of their unique combination of adhesive and cohesive strength over a broad temperature range.

Adhesive requirements



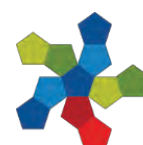
Dynasol recommended grades for Labels

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H	I
Solprene 1205/1217	Linear SBR	25	4000 ¹	---	●	●	◐	◐	◑	●	◐	●	◐
Solprene 4320X	Linear SBS/SB	23	1000 ²	15 ⁴	●	●	◐	◐	◑	●	◐	●	◐
Solprene 4318	Linear SBS/SB	32	700 ²	5 ⁴	●	●	◐	◐	◑	●	◐	●	◐
Solprene 4428X	Radial SBS	40	430 ²	10 ⁴	●	●	◐	◐	●	●	◐	●	●

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H	I
Calprene H6110	Linear SEBS	32	470 ³	<1 ⁵									
Calprene H6120	Linear SEBS	30	1900 ³	1 ⁵									
Calprene H6180X	Linear SEBS	15	---	9 ⁶									
Calprene H6182X	Linear SEBS	15	---	24 ⁶									

Requirement performance Excellent Good Regular

Condition test 1- 30% @ 25°C // 2- 25% @ 25°C // 3- 20% @ 25°C // 4- 190°C/5Kg
5- 230°C/2.16Kg // 6- 200°C/5Kg



Packaging

The packaging industry is currently growing due to the high demand of online buying and new resealable food packaging.

Dynasol Group has the capacity to provide styrene-butadiene copolymers to formulate adhesives that must have special characteristics and meet specific circumstances.

Adhesive requirements



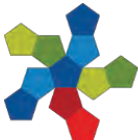
Dynasol recommended grades for Packaging

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G
Solprene 4318	Linear SBS/SB	32	700 ¹	5 ³	●	●	●	●	●	●	●
Solprene 4320X	Linear SBS/SB	23	1000 ¹	15 ³	●	●	●	●	●	●	●
Calprene 540	Linear SBS	40	600 ¹	5.5 ³	●	●	●	●	●	●	●
Solprene 4428X	Radial SBS	40	430 ¹	10 ³	●	●	●	●	●	●	●
Solprene 416	Radial SBS	30	2200 ¹	---	●	●	●	●	●	●	●

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G
Solprene 1205 / 1217	Linear SBR	25	4000 ²	---	●	◐	◐	●	●	◐	●

Requirement performance ● Excellent ◐ Good ◑ Regular

Condition test 1- 25% @ 25°C // 2- 30% @ 25°C // 3- 190°C/5Kg

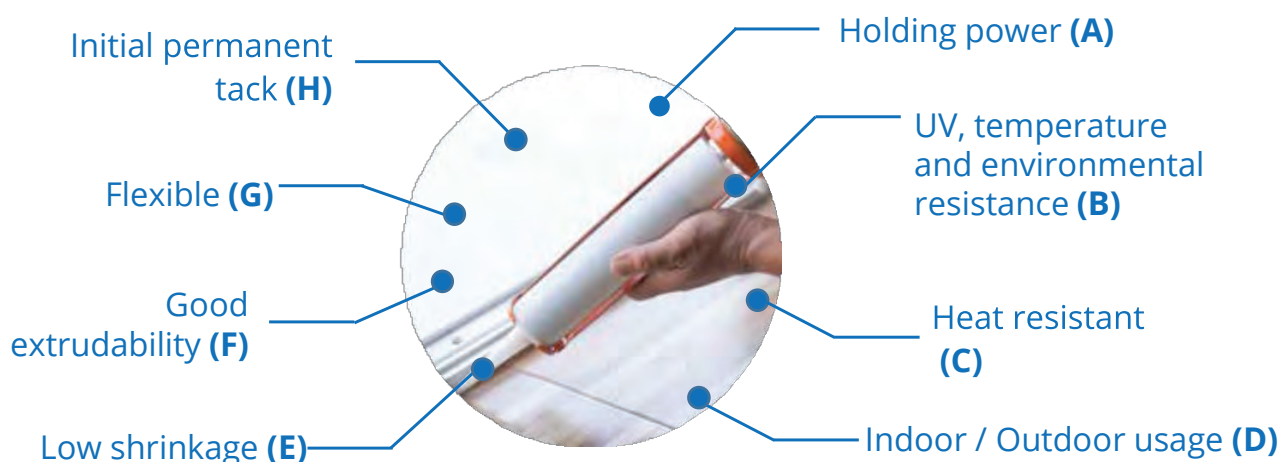


Building & Construction

Adhesives are used in the building and construction industry for automotive, floor, subfloors, walls, ceilings and bookbinding applications.

Dynasol Group offers a wide variety of products that can meet special customer requirements like high cohesive strength, low viscosity, aggressive adhesion to polyolefins, vinyl, other low energy films, clarity, UV and environmental resistance. All while complying with regulatory trends including the capacity of adhesive formulations with low VOC.

Adhesive Requirements



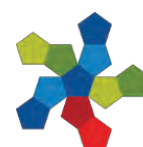
Dynasol recommended grades for Building & Construction

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Calprene H6110	Linear SEBS	32	470 ¹	< 1 ⁶								
Calprene H6120	Linear SEBS	30	1900 ¹	1 ⁶								
Calprene H6215X	Linear SEBS	13	1500 ¹	12 ⁶								
Emulprene 1013	HSBR	43.5	500-600 ²	---								
Emulprene 1009L	Partially Cross-linked HSBR	23.5	120-400 ³	---								

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Calprene 500	Linear SBS	31	5000 ⁴	5 ⁷	●	◐	◑	◐	◐	◐	●	◐
Calprene 501	Linear SBS	30	1100 ⁴	---	◑	◐	◑	◐	◐	◑	●	◑
Calprene 540	Linear SBS	40	600 ⁴	5.5 ⁷	●	◐	●	◐	◐	●	●	◑
Solprene 4301	Linear SBS/SB	33	3000 ⁴	---	◑	◐	◐	◐	◐	◐	●	◑

Requirement performance ● Excellent ◑ Good ◐ Regular

Condition test 1- 20% @ 25°C // 2- 10% @ 25°C // 3- 3.68% @ 25°C // 4- 25% @ 25°C
5- 230°C/2.16Kg // 6- 200°C/5Kg // 7- 190°C/5Kg



The adhesives used in the furniture and mattress industry improve production and manufacturing processes. This allows us to have the ability to join different substrates for the assembly of furniture, upholstery and mattresses, contributing to the efficiency and durability of the final product.

Adhesive Requirements



High mechanical & cohesion properties (**A**)

Temperature & water resistance (B)

- Excellent wetting (C)









Elastic & flexible (D)

Chemical & grease
resistance (G)

Excellent durability (F)

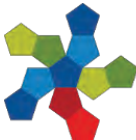
Clear color & good color stability (E)

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Solprene 416	Radial SBS	30	2200 ¹	---								
Solprene 411	Radial SBS	30	20000 ¹	---								
Solprene 1205/1217	Linear SBR	25	4000 ⁵	---								

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Calprene 500	Linear SBS	31	5000 ¹	5 ³								

Requirement performance  Excellent  Good  Regular

Condition test 1- 25% @ 25°C // 2- 30% @ 25°C // 3- 190°C/5Kg



Automotive Industry

The automotive industry is constantly evolving where one of the main trends is to reduce the weight of the vehicle. For this we use adhesives and sealants as a strategic advantage over mechanical joints such as welding or screws. This allows us to have a wide variety of applications from sensor bonding to chassis construction.

Dynasol Groups' SBCs allow automotive adhesives and sealants to meet strict technical requirements such as: absorbing vibration, high temperature resistance, and bonding materials with low surface force.

Adhesive requirements

Good adhesion to a variety of substrates (leather, paper, Non-Woven, plastics) **(H)**

Holding Power **(G)**

Flexibility **(F)**

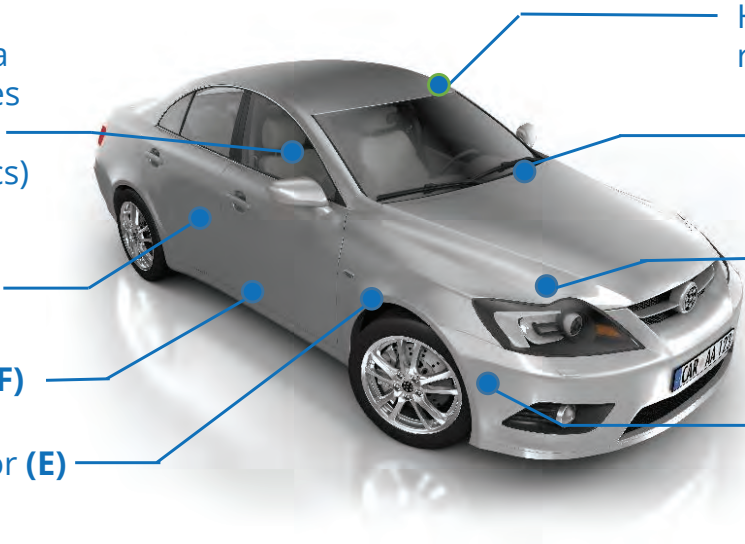
Electrical insulator **(E)**

High temperature resistance **(A)**

Absorb vibration and impact forces **(B)**

































Acoustical absorption and isolation **(C)**

Join metal with plastic products **(D)**



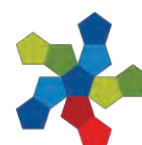
Dynasol recommended grades for the Automotive Industry

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Emulprene 10003	HSBR	28	110-400 ¹	---	●	●	●	●	●	●	●	--
Dyne 149	Hybrid Copolymer	38	310 ²	---	●	●	●	●	●	●	●	●

Brand Grade	Structure	Styrene Content, %	TSV, cP	MFI, g/10min	A	B	C	D	E	F	G	H
Solprene 416	Radial SBS	30	2200 ²	---								
Solprene 411	Radial SBS	30	20000 ²	---								
Solprene 1205/1217	Linear SBR	25	4000 ³	---								
Calprene 500	Linear SBS	31	5000 ²	5 ⁴								

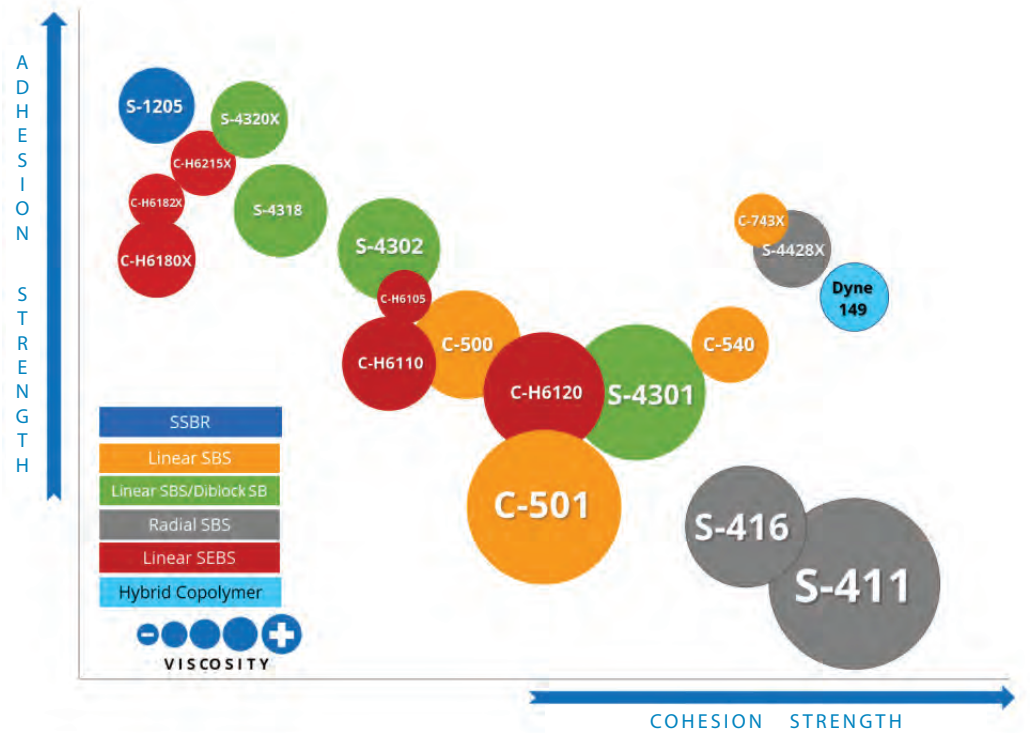
Requirement performance  Excellent  Good  Regular

Condition test 1- 3.68% @ 25°C // 2- 25% @ 25°C // 3- 30% @ 25°C // 4- 190°C/5Kg

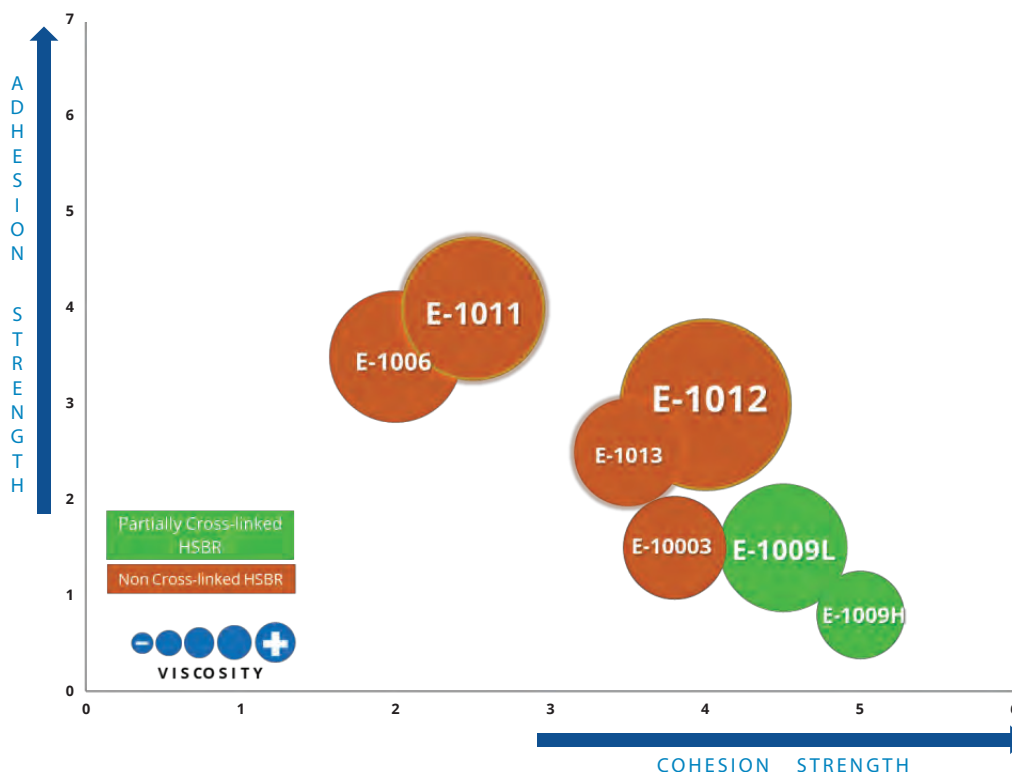


Products for Adhesives & Sealants

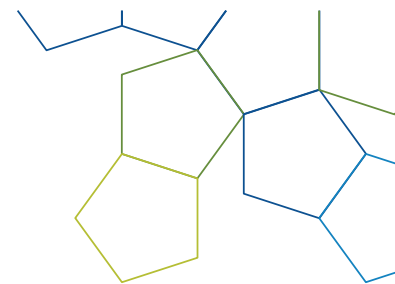
Solution Technology Products



Emulsion Technology Products



Dynasol Technical Experience



Technical Capability

Dynasol Group is committed to supporting its customers with dynamic solutions demanded by the market challenges of Adhesives & Sealants. Our expert R&D department aims to maintain the technological vanguard in the development of SBC.

Our two laboratories specialize in adhesives and sealants with global technical attention. Our Mexico and Spain laboratory technical staff are dedicated to the development of new applications and provide assistance in adhesive formulations in a quick and timely manner for the selection of raw materials and provide support for the development of applications.



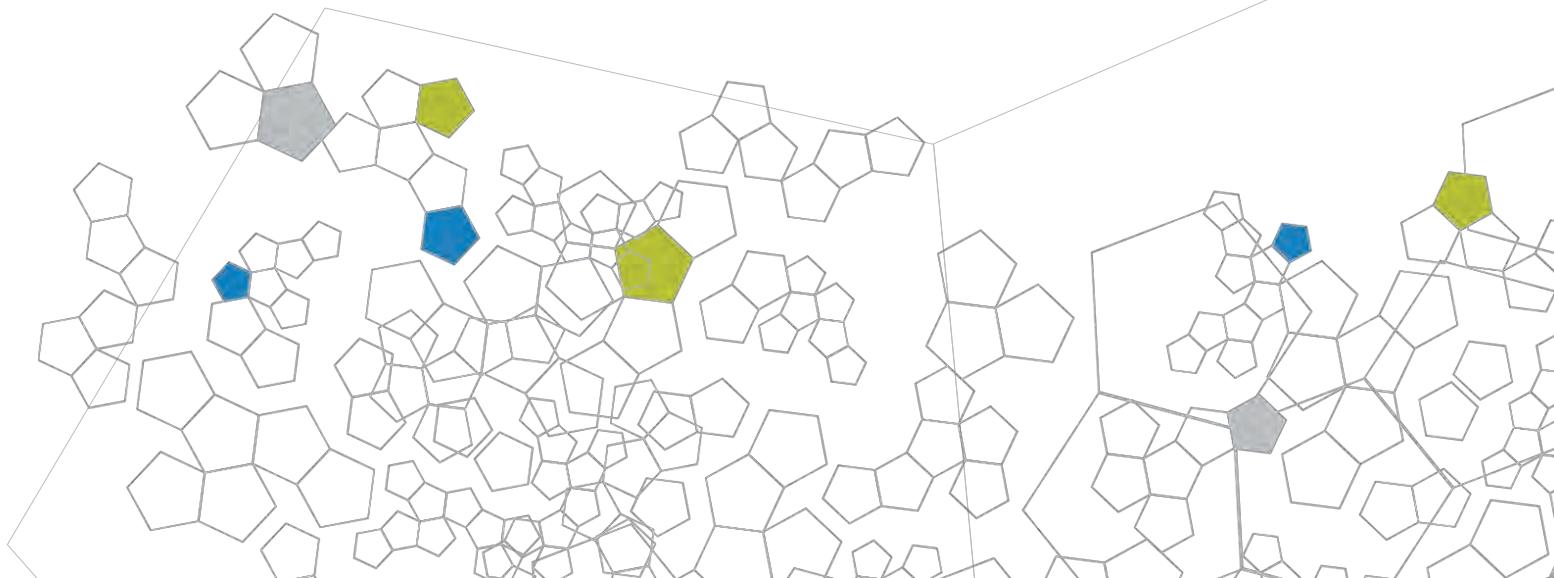
Regulatory Guidance



The global presence of Dynasol Group allows us to be aware of the importance of being in tune with the ever-changing regulations around the world.

The products manufactured in all our sites are listed without ban in many of the chemical inventories in North and Latin America, Europe, Asia and Oceania, and comply with European and Chinese regulations for food contact, FDA standards for food contact materials do not contain any substance included in the REACH SVHC candidate list or Annex XVII.

For further inquiries on regulations please contact marketing.dynasol@dynasol.com





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