

KYMENE™ WET-STRENGTH RESIN INNOVATIONS

**Bringing the right products and people
to your papermaking**



Asia Pacific Portfolio

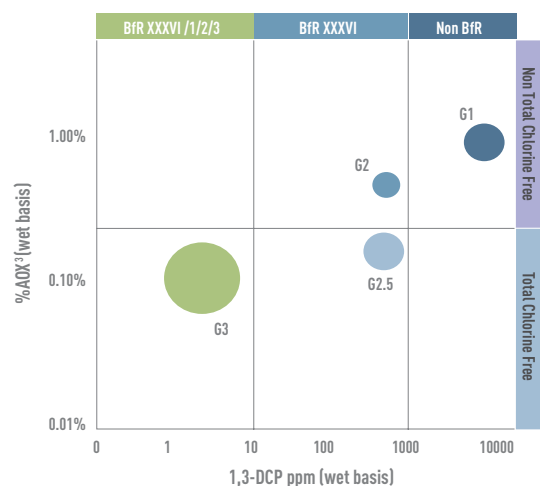
- Increased wet strength
- Reduced cost
- Increased efficiency
- Improved functionality
- Improved regulatory compliance

Technology Overview

Kymene™ wet-strength additives, based on polyamide-epichlorohydrin (PAE) resin chemistry, help papermakers improve the wet strength of grades intended primarily for the consumer market. These grades include tissue (facial, kitchen towel, wipers, napkins and tableware), packaging (liquid packaging, aseptic container, carrier board, and other forms of food packaging), and specialty (tea bag, coffee filter, labels, currency, laminating grades, etc.).

Designed to be used at neutral-to-alkaline pH, PAE resins have a high level of wet-strength permanence, help improve machine efficiency and do not adversely affect paper absorbency as do some other chemistries.

Solenis has developed methods, including post-synthesis technologies, to modify the



ASIA PACIFIC LINE OF KYMENE WET-STRENGTH RESINS ¹						
Generation	Base Resin	Total Solids	Efficiency	DCP ²	MCPD ²	Total AOX ²
G1	Kymene 557H	12.5%	High	3,000 ppm	400 ppm	0.70%
G1	Kymene 705	25.0%	High	6,000 ppm	800 ppm	1.30%
G2	Kymene 557LX	12.5%	Standard	999 ppm	300 ppm	0.30%
G2	Kymene 6500	12.5%	Standard	999 ppm	300 ppm	0.30%
G2	Kymene 613	13.0%	High	600 ppm	200 ppm	0.20%
G2	Kymene 920-AP	20.0%	High	850 ppm	300 ppm	0.62%
G3	Kymene G3 X-Cel	16.0%	Standard	5 ppm	6 ppm	0.12%
G3	Kymene GHP12	12.0%	High	5 ppm	10 ppm	0.10%

¹ These are typical values only and do not constitute a specification.

² Values at highest solids option

basic chemistry of Kymene wet-strength resins to make them stronger-performing while reducing the by-products 1,3-dichloropropanol (1,3-DCP) and 3-monochloropropan-1,2-diol (3-MCPD), as well as aminochlorohydrin (ACH) and polymer-bound CPD (PB-CPD) for our customers' paper and board regulatory compliance needs.

Compliance and Sustainability

Solenis' wet-strength resins can be supplied in a variety of product configurations to accommodate any mill's compliance and regulatory standards. For customers exporting to European markets, we offer solutions that help them comply with environmental labeling established by Nordic Ecolabel and recommendations issued by the German Federal Institute of Risk Assessment (Bundesinstitut für Risikobewertung, or BfR).

³ Adsorbable organic halogen

FEATURE	BENEFIT
A legacy of innovation	The most complete line of G1, G2 and G3 wet-strength resins on the market, making it possible to address a full range of customer compliance needs while balancing cost-in-use
Advanced chemical techniques and manufacturing processes	Introduction of high-solids, high-efficiency resins with ever-increasing levels of azetidinium (AZE) functionality
Biodehalogenation and membrane separation technologies	Stronger-performing resins with reduced levels of 1,3-DCP and 3-MCPD, as well as aminochlorohydrin and polymer-bound CPD
Extensive manufacturing footprint	Ability to provide wet-strength resins—efficiently and cost-effectively—to any mill, anywhere in the world
Dedicated R&D organization and wet-strength resin expertise	Commitment to deliver the next generation of wet-strength resins that increase solids, improve functionality and remain far ahead of all regulatory compliance issues

Supply Chain

Solenis owns and operates its own manufacturing facility for wet-strength resin in Asia. This ensures consistent, high-quality product to meet the demands of all customers. At this facility, we have the flexibility to supply all generations of wet-strength resin to allow customers to meet regulatory requirements for domestic and export paper.

More Information

To learn more, contact your technical sales representative or visit us online.

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