



Industrial Specialties

POLYOX™ Water Soluble Resins

Exceptional Resins for Industrial Applications



POLYOX™ Water Soluble Resins (WSR) are non-ionic, high molecular weight, water-soluble poly(ethylene oxide) polymers.

They offer the expected properties needed in any high-performing class of water-soluble polymer – such as lubricity, binding, water retention, thickening, and film formation.

In addition, Dow's POLYOX™ water-soluble polymers offer a number of exceptional properties:

- **As thermoplastics**, POLYOX™ resins can be easily processed with different technologies, i.e. extrusion or injection molding.
- **POLYOX™ films** are flexible, tough and resistant to most oils and greases. High-performance and versatile products, such as breathable packaging, can be produced by combining POLYOX™ with many synthetic polymers (polyethylene, polypropylene, polystyrene, etc.)
- **A water-soluble POLYOX™ film** offers the primary lubricant action in lubricant strips for razors.

Due to its enhanced adhesive properties POLYOX™ has been used as an adhesive in industrial applications for many years. POLYOX™ solutions exhibit a high degree of wet tack and thus are useful as wet adhesives for tail-tie applications, as well as in tissue and toweling. The dry residue is non-tacky. Therefore POLYOX™ shows a notable advantage compared to conventional polymers as it can be used to adjust the suitable degree of adhesion in addition to its easy stripping behavior.



Extraordinary binding and dispersing capabilities of POLYOX™ are widely used in various industries. For example, POLYOX™ is the preferred binder for phosphor coating in the manufacture of fluorescent lamps. Compared to other binders, POLYOX™ is characterized by a clean burn out at low temperature. Another example for the use of the high binding efficiency is the production of ceramic bricks or fibers. Here POLYOX™ is not only used as a binder but also as a forming aid and lubricant. The residue-free burn-out at a low temperature gives a measurable advantage in quality in addition to energy savings.

Good water-solubility, distinctive thickening and enhanced film forming capabilities make POLYOX™ a multifunctional polymer in agricultural applications. As a film former, POLYOX™ can be used in seed coatings and in protective coating for premeasured doses of pesticides and other solid agricultural formulations. The thermoplastic nature and film-forming characteristics of POLYOX™ makes it ideal for tape coating and adhering seed without inferring with germination and growth.

Whenever polymer-bridging mechanism controls the flocculation efficiency, the high molecular grades of POLYOX™ excel. POLYOX™ has been successfully used to flocculate dispersed and soluble silica, clay, and coal in the mining industry and in the pulp and paper industry, e.g. for fiber fines and filler retention.

The ability to reduce spatter and mist formation in aqueous formulations results from the pseudo-plastic rheology of POLYOX™. This characteristic makes it easier to apply e.g. paints and herbicides by spraying without fogging or drift to adjacent areas.

The described applications are examples and an overview of the ways POLYOX™ Water Soluble Resins (WSR) can be used and the value it brings to so many different industries. POLYOX™ is characterized by an unusual array of properties that makes it useful in a wide variety of applications. Dow offers POLYOX™ in molecular weights from 100,000 to about 10,000,000 to meet the special requirements and desired properties.



Product Stewardship

Dow has a fundamental concern for all who make, distribute and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products – from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.



For more information contact us:

North America	+1 800 447 4369
Europe/Middle East/Africa	+31 11 567 2626
Asia/Pacific	+60 3 7965 5392
Latin America	+55 11 5184 8722

dowindustrialspecialties.com



Form Number: 787-00018CDP Published August 2013

© TM Trademark of The Dow Chemical Company ("Dow") or an affiliated company of Dow

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.