

## Grinding and Milling



## Optimize Grinding Efficiencies

Efficient and effective separation of metals and minerals is essential in recovering the most value from mining operations. Dow provides a wide range of solutions to help our customers optimize their grinding and milling processes. Dow offers solutions including proprietary chemicals such as rheology modifiers, amines, surface-active agents and dispersants to help improve grinding efficiency and productivity. Dow also provides chemicals aimed at controlling the generation of dust due to grinding.

### **The Power of ORE**

From increasing cost pressures, to more stringent environmental and safety regulations, to declining ore grades, the mining industry faces numerous challenges impacting profitability. Dow is helping to address these challenges with the Power of ORE – a wide range of products and expertise to address a broad spectrum of mining, mineral processing and remediation challenges.

The Power of ORE gives companies striving to extract more value from mining operations a real choice in the marketplace. Dow can help enable Operational efficiency, boost Recovery enhancement and facilitate Environmental protection.

## Grinding and Milling Offerings and Solutions

Function	Dow Product	Description
Grinding Aids	ACUMER™ 9000 Series	Acrylic polymer dispersants and rheology modifiers for industrial mineral and metallic ore processing
	CARBOWAX™	Polyethylene glycols (PEGs)
	Propylene glycol (PG)	Industrial grade PG for grinding aid lubricants
Surfactants	DOWFAX™	Anionic surfactants
	ECOSURF™	Biodegradable* non-ionic surfactants
	TERGITOL™	Non-ionic surfactants
	TRITON™	Anionic and non-ionic surfactants

\*Readily biodegradable as defined in OECD Guidelines for the Testing of Chemicals, Section 3 (Rev. 23, March 2006)

Dow provides a range of solutions to help our customers optimize their grinding and milling processes. Dow's specialty chemicals include grinding aids as well as non-ionic and anionic surfactants with biodegradable<sup>1</sup> offerings to improve grinding efficiency and productivity.

Some of the benefits include:

- Reduced grinding slurry viscosity
- Inhibition of particle fines agglomeration
- Reduced energy costs
- Finer particle sizes

Dow solutions maximize grinding and milling throughput, while minimizing energy costs.

<sup>1</sup>Readily biodegradable as defined in OECD Guidelines for the Testing of Chemicals, Section 3 (Rev. 23, March 2006)



Coarse ground ore

## Dow's History in the Mining Industry

Since our earliest roots isolating compounds from prehistoric brine in the 1890s, to pioneering chemistries for froth flotation processes, to developing innovative technologies for water treatment and reuse today, Dow has continued to innovate to help customers extract more value in the mining industry.

Dow is a world leader in membrane (RO/NF/UF) and ion exchange technologies, and provides a powerful portfolio of chemistries and solutions to address:

- Mine water management, including tailings and waste treatment
- Slurry management
- Dust control
- Grinding and milling
- Flotation and hydrometallurgy, focused on maximizing metal recovery utilizing select chemistries, polymer additives and ion exchange technologies



Fine ground ore

**Commitment to Sustainability**

Dow's commitment to sustainability is infused into the very DNA of our Company. In 2006, we launched our current set of 2015 Sustainability Goals, which focus not only on the Company's footprint in our own operations but also our handprint through the positive impact of Dow products and their role in global sustainable development. Focused on addressing global challenges like water, food, climate change and energy, Dow has made significant progress against these goals. For more information on how sustainability is integrated into all aspects of our business and operations, please visit [www.dow.com/sustainability](http://www.dow.com/sustainability).

**Product Stewardship and Safety**

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.

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.

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**The Dow Chemical Company****U.S., Canada and Mexico****dow.com/mining**

Toll Free 800 447 4369\*

**Latin America** +55 11 5188 9222**Europe**

Toll Free +800 3 694 6367\*

+32 3 450 2240

**Asia Pacific**

Toll Free +800 7776-7776\*

+60 3 7958 3392

**Middle East (Dubai)** +971 4 453 7000**North Africa (Cairo)** +202 2 480 1466**Sub-Saharan Africa  
(Johannesburg)** +27 11 575 1547\*Toll-free service not available in all countries

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