



ACUMER™ 1000

Membrane Antiscalant

Description

ACUMER™ 1000 Membrane Antiscalant is a liquid antiscalant/dispersant specifically developed to prevent scale formation. This product is an acrylic based polymer. It acts directly on the crystallization process, preventing crystal growth. The equilibrium is then modified and normal solubility limits can be exceeded without precipitation. It also disperses particles avoiding deposition on the membrane surface.

ACUMER 1000 Membrane Antiscalant is a **general purpose scale inhibitor and dispersant**, particularly effective on calcium carbonate, calcium sulfate, barium sulfate and other low solubility salts.

Compared with other potential scale inhibition treatments used in this application, such as acidification and/or addition of polyphosphates, **ACUMER 1000** Membrane Antiscalant, in addition to its specific performances outlined above, is non hazardous, chlorine stable, phosphate free liquid, insensitive to hydrolysis and easy to handle and meter. In the most difficult cases, it can be used in conjunction with acidification as it is stable and effective over a wide pH range.

Typical and Physical Properties

(These properties are typical but do not constitute specifications.)

Property	Typical Values
Appearance	Clear, Yellow Liquid*
Chemical nature	Acrylic polymer
Average Molecular Weight (Mw)	2000
Total Solids (%)	48
pH neat (25%)	3,6
Viscosity Brookfield (25°C, mPa.s)	200
Specific Gravity (25°C)	1,25

*A slight haze may appear, This does not affect the intrinsic properties of the product or its performance

Application

The choice and level of addition of **ACUMER™ 1000** Membrane Antiscalant will depend on the analysis of the feed water and on the plant design and operating conditions and typically will vary from 1 to 7 ppm (as is) in the feed water. Metering can be split between different stages of the process depending on the plant design. This polymer can also be added in combination if different types of scale must be inhibited. It should be injected continuously in the neat form directly from the drum, or diluted with demineralized or softened water before use. The diluted solution should be either used within one day or preserved with a suitable preservative package.

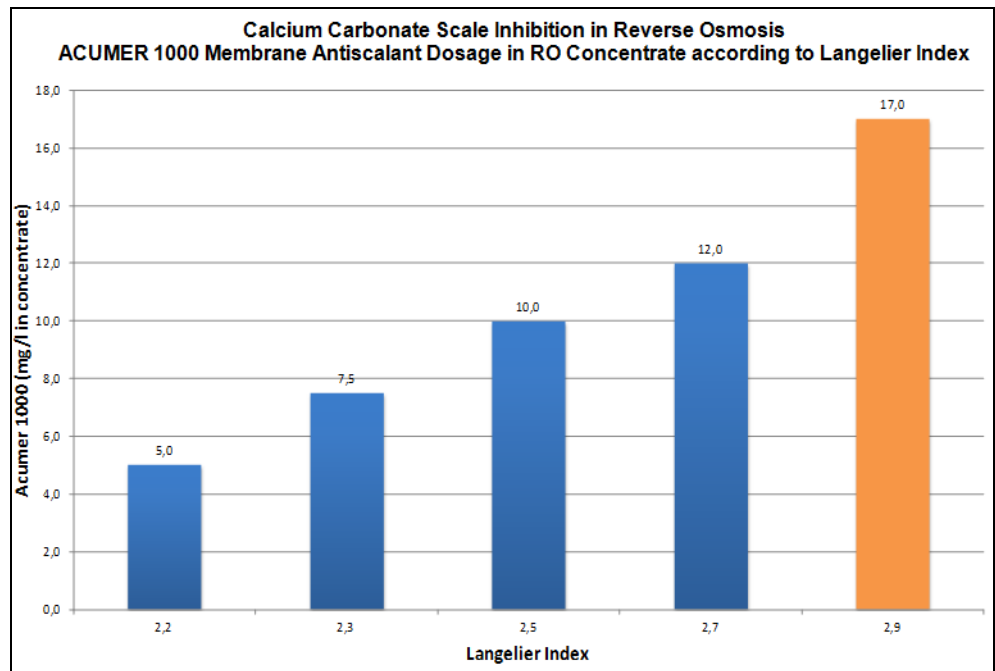
Dosing Guidelines

The below charts allows calculating ACUMER™ 1000 Membrane Antiscalant dosage according to the type of scalant.

1) CaCO₃ scale inhibition :

Dosage is given in mg/l in the RO concentrate (brine), according to the Langelier Index of the RO concentrate.

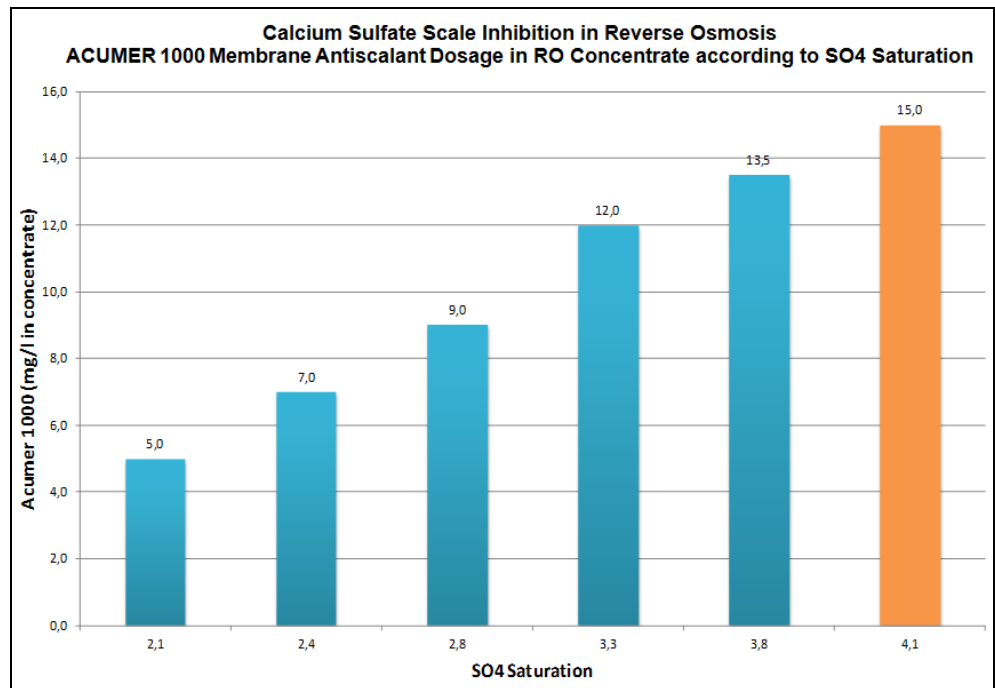
The last bar chart in orange indicates that the efficacy limit is reached and that some precipitation could occur.



2) CaSO₄ scale inhibition :

Dosage is given in mg/l in the RO concentrate (brine), according to the SO₄ supersaturation level of the RO concentrate.

The last bar chart in orange indicates that the efficacy limit is reached and that some precipitation could occur.



Dosage in feed water can be calculated with this formula :

$$\text{mg/l in feed water} = \text{mg/l in concentrate} \times (100 - \% \text{ Recovery}) / 100$$

Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

The product has received NSF/ANSI Standard 60 certification in the Reverse Osmosis Antiscalant category. Some products have received NSF/ANSI Standard 60 certification in the Reverse Osmosis Antiscalant category. Please contact a Dow Representative for specific ordering instructions.

Storage

Store products in tightly closed original containers at temperatures recommended on the product label.

ACUMER™ 1000 Membrane Antiscalant is stable for two years if kept in its original container under normal storage conditions.

Disposal Considerations

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

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.

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