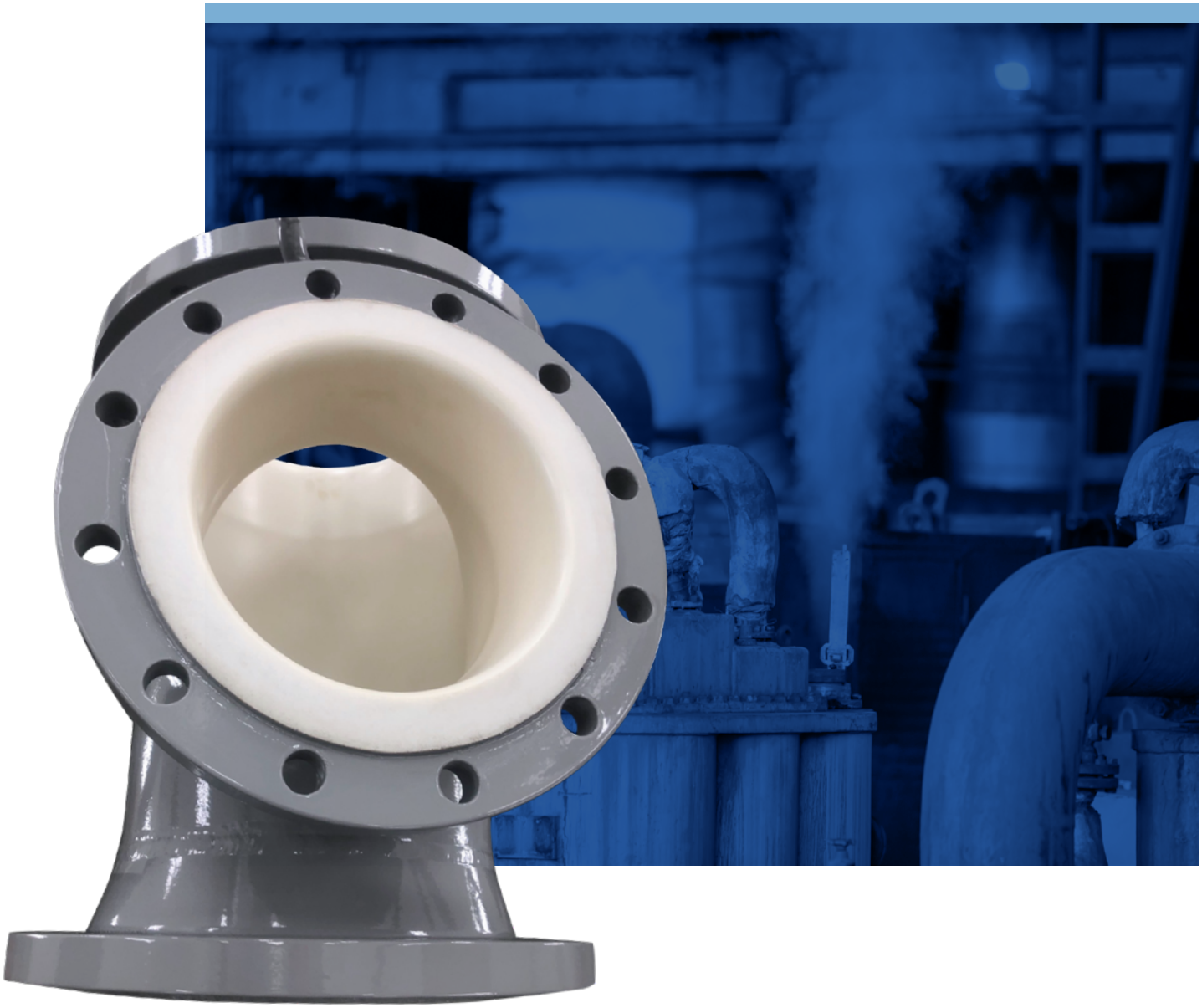
RMB PRODUCTS

RMB BIO-ARMOR™

BIOFOULING PREVENTION

How to Prevent MIC and Biofouling While Reducing Costs



EFFECTS OF MICROBIOLOGICALLY INFLUENCED CORROSION

Microbiologically influenced corrosion (MIC) and biofouling, the fouling of pipes and underwater surfaces by organisms such as barnacles and algae, are a significant cause (30-40%) of corrosion-induced failures, yet very few coating systems on the market provide protection from this type of corrosive attack.

Alone, HDPE liner has proven to last over 20 years in brine water services by providing long-term protection to aqueous corrosion in saltwater applications. Defects and microbial degradation of polymer coatings, however, can provide opportunities for localized biological attacks. Biofouling can also gradually build up on top of the lining system and decrease efficiency of the fluid delivery system.

RMB BIO-ARMOR™: A NEW SOLUTION

Creating a homogenous blend of HDPE and antimicrobial powder gives the added protection against localized biological attacks and biofouling buildup on pipes. BIO-ARMOR is a proprietary blend of HDPE and antimicrobial resin that is applied to the pipe and vessel by a rotational lining process. BIO-ARMOR protects against corrosion as well as 99% of microbes that induce MIC and biofouling.

By lining your pipe and vessels with BIO-ARMOR, your company will:

- Lower the environmental impact; no biocide pipeline flushing is required
- Lower your operational costs; less maintenance of the pipeline is required
- Increase the life expectancy of your pipeline; a pipe with BIO-ARMOR should last 5-10 years longer than a pipe lined only with HDPE
- Be able to customize solutions and sizes, including liners for pipe and vessels up to 9' NPS and straight section spools up to 20' long, as well as flange ratings of ANSI 150, 300, 600, 900, 1500, and 2500
- Have the capability to protect equipment with complex geometries without adding more costs

APPLICABLE INDUSTRIES

Chemical processing
Nuclear power generation
Service water
Onshore and offshore oil and gas
Underground pipeline
Water treatment

MATERIAL DETAILS

Based on your application, RMB Products will design the liner thickness and formulate the BIO-ARMOR resin to provide corrosion protection and resistance to biofilm and/or extreme biofouling.

MATERIAL	MAXIMUM TEMPERATURE	STANDARD LINER THICKNESS	MAXIMUM LINER THICKNESS	FULL VACUUM RATED
BIO-ARMOR	180°F	0.320"	0.500"	Yes

BIO-ARMOR SUCCESS STORY

In the Poseidon Sea off the coast of India, fouling is very aggressive. According to researchers at Sacred Heart Marine Research Centre-Poseidon, an immersed, unprotected surface becomes covered by juvenile barnacles within two weeks. A low copper coating will foul within a month and show massive fouling from barnacles, algae, and sponges as the immersion continues.

A test was done over 90 days with rotationally lined metal pieces with BIO-ARMOR. The pieces were immersed in depths below 2' in the Poseidon Sea.

A1	A2	A3	CONTROL
88% HDPE + 12% antimicrobial blend	90% HDPE + 10% antimicrobial blend	99.8% HDPE + 0.2% antimicrobial blend	100% HDPE

ABOUT RMB PRODUCTS

RMB provides highly engineered polymers and corrosion protection technology for demanding, mission-critical applications in aerospace, chemical processing, semiconductor, and biopharmaceutical industries. The company offers a variety of superior rotational molding and additive manufacturing technologies that have proven reliable and indispensable to customers around the world. RMB offers a unique rotational lining capability that provides seamless, bonded linings that offer superior corrosion protection for pipes, fittings, tanks, and vessels compared with competitive lining materials and methods.

Looking for more information or a quote? Call us at 719.382.9300.