



TIG Group - Chemicals

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Dear business partners,

Water is in many industries around the world an essential and limited resource. For more than 120 years, we have been one of the pioneers in water treatment, committed to helping our customers achieve operational reliability and the optimisation of their water systems. Our team are acknowledged experts in the fields of chemical formulation, water plant management, the supply of chemicals and other consumables, problem solving and training.

In addition to our water treatment plants for drinking water, beverages water, ecological disposal of waste water or special treatment of process and ultra pure water, we offer you a wide range of chemicals for all aspects of water treatment. With our own blending facility in Dubai we can react particularly flexible on our customers' needs.

Our objective is customers satisfaction, for whom we successfully mobilise our full commitment.

Yours

Udo Arbeiter
Managing Director TIG Group FZ LLC



Business Activities

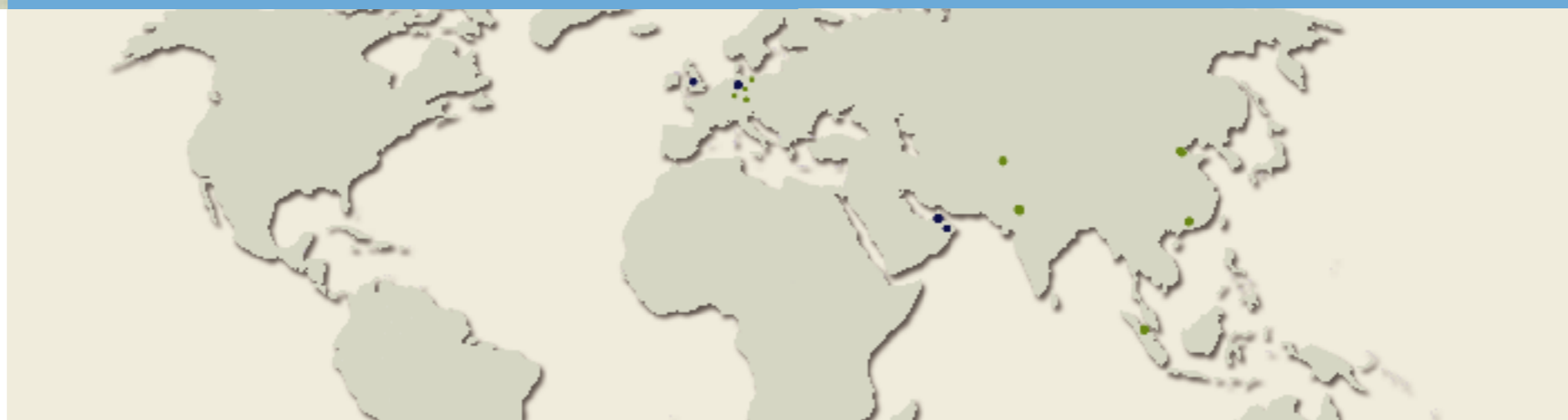
TIG Group is based in Hamburg, Germany. Our areas of expertise include the design and supply of propriety membrane chemicals, a wide range of speciality chemicals for industrial production, test kits and consumables, and process support.

We have a dedicated team of industrial specialists who work closely with our customers to satisfy their requirements, however difficult or challenging they may be, with the ultimate goal of delivering total operational reliability through our complete commitment to Total Site Solutions.

Environmental Challenges

TIG is fully committed to addressing the environmental challenges that face us now, and will continue to do in the future. We recognise the worldwide demand for the proper and effective management of all resources.

By focussing on the complexities of environmentally sound and cost-effective processes we provide solutions that aid the goal of sustainable development.



Market Areas

TIG is active in a wide range of sectors, and our products and services have been developed to reflect our customers' needs. Our experience in chemical formulation and water plant management are fundamental elements of the concept we offer – Total Site Solutions.

Amongst the industries worldwide in which we are active are:

- Aviation
- Automotive
- Beverage Production
- Brewing
- Catering
- Chemicals
- Dairy
- Food
- Glass
- Mining
- Municipal
- Packaging
- Oil and Gas
- Paper and Pulp
- Semi-conductors
- Plastics
- Swimming Pools and Spas
- Wood



Total Site Solutions

At the heart of our business is the concept of Total Site Solutions. We provide single source solutions for our customers in all aspects of water treatment. Our team of experienced specialists come from all areas of the industry and their commitment guarantees that a solution can be found and implemented quickly. We have specialised knowledge in the fields of chemical formulation, water plant management, the supply of chemicals and other consumables, problem solving and training.

An initial review process leads to us agreeing your requirements with you and to us defining together the strategy that will be needed to achieve this. We can design a tailor-made system solution for you. We pay particular attention to safe process technology and your investment and operating costs. As well as supplying chemicals and consumables we can maintain your equipment on a partial or full service basis.

Our Total Site Solution policy is centred on a full site evaluation:

- We offer a complete study and quotation for spare parts, consumables, chemicals and your future service needs
- We can recommend the ideal level of stock holding for spares, consumables and chemicals
- We can provide integrated service contracts
- We can also offer you chemical framework agreements and assessments

Quality Vendor Programme

TIG is totally committed to our "proof not promises" policy. We have the know-how to help you with all water and process related technologies. Our Certified Vendor Programme will demonstrate how we can boost your business in key areas. In creating a programme for you we will agree your strategic objectives and suggest measures and initiatives that will help you meet them.

TIG provides you, our customer, with products and services which meet the highest standards of quality and reliability.

Quality is the key goal for all our staff. We offer:

- 24 hour technical support and service
- Superior product quality to meet stringent performance requirements
- Certificates of analysis, certificates of conformity, and shelf life statements, available for all our products
- Extensive application support
- Client regulatory compliance systems
- External quality audits



TIG Group RO Optimisation

TIG's engineers have many years experience in the field of membrane technology. They are all familiar with the latest industry standards. The company works closely with academic authorities worldwide to enhance and develop solutions for our customers.

We have our own formulations of RO chemicals, designed to ensure optimum plant performance.

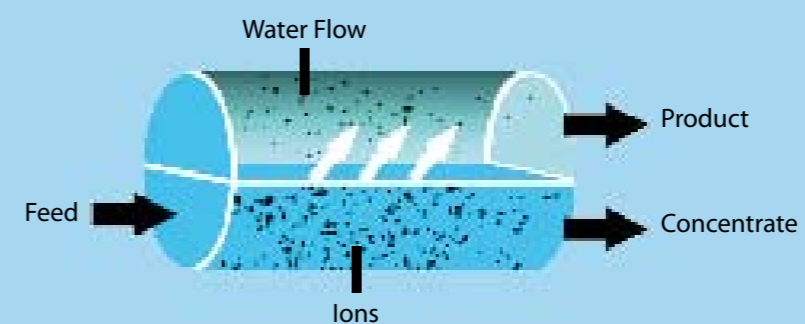


TIG Group Antiscalant

TIG has developed an extensive library of performance characteristics of antiscalant blends which allow us to meet specific performance criteria.

Our antiscalant products are designed specifically for each water type and size of plant.

A higher recovery rate concentrates the antiscalant more, allowing lower dose rates and reducing operational costs on site. Your membrane separation budget will decrease in the first year you use the TIG range of antiscalant products.



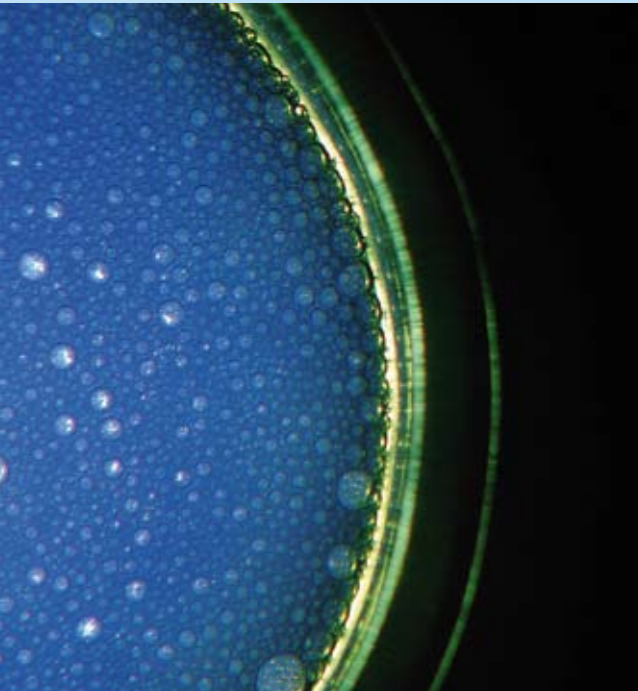
TIG Group RO Cleaners

Fouling is the prime cause of membrane performance loss. Effective pre-treatment is essential for long term performance reliability from a membrane separation plant.

The TIG range of cleaners have been designed to work synergistically to maintain operational stability. Using a combination of the appropriate cleaners a regime can be established that can cope with most foulant situations. Timely intervention is critical if effective performance recovery is to be achieved.

Our products have been specially formulated to achieve maximum effectiveness within specific foulant situations. For example, high pH formulations with dispersants have been developed to remove biofouling; low pH for iron and carbonate scale removal.

TIG Group cleaners are available as powder and liquid formulations to suit your site requirements.



TIG Group RO Projection Software

The TIG RO Projection is our own propriety software and covers both the predictive requirement for antiscalants and plant performance monitoring and recovery.

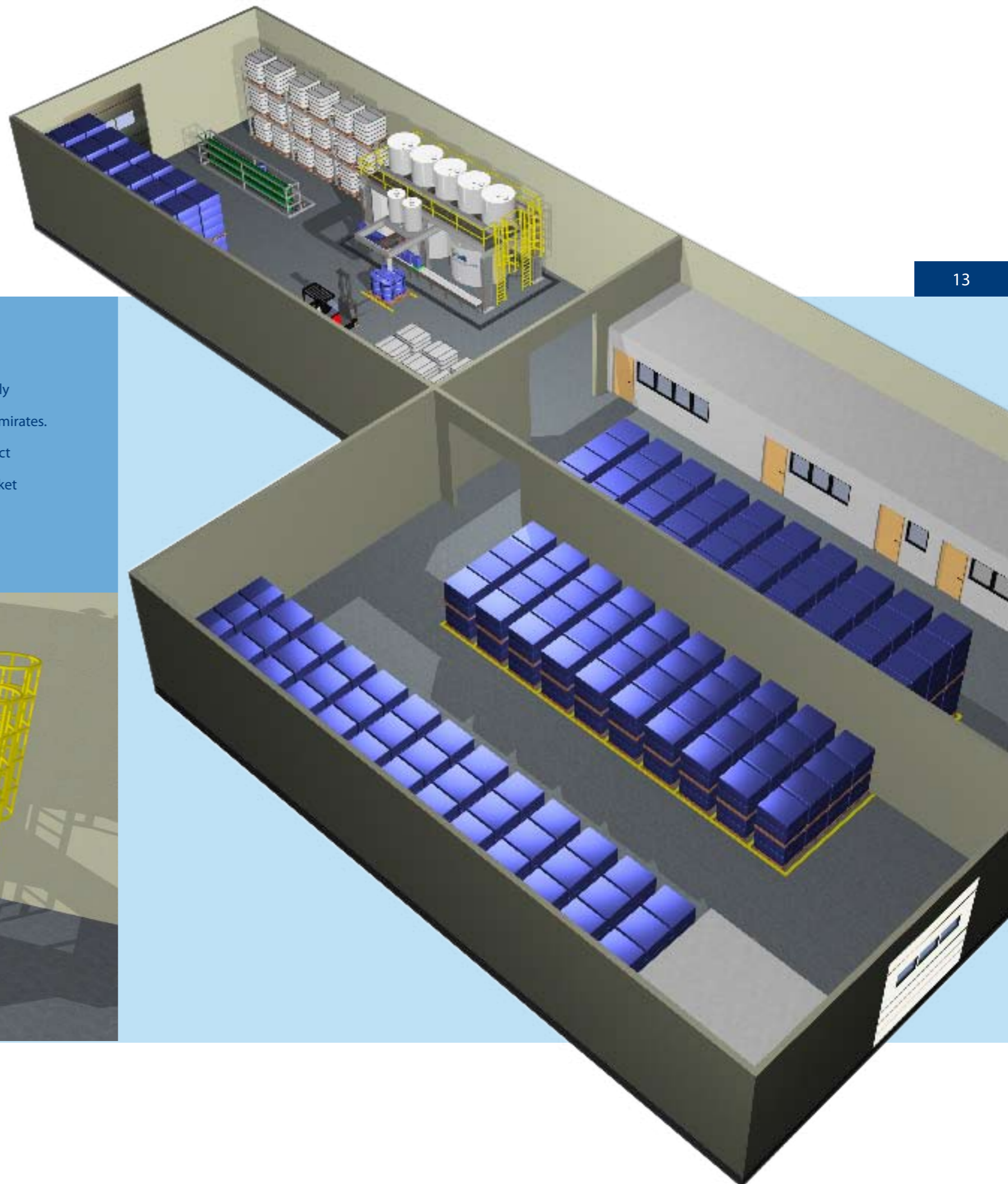
It has been developed to reflect the performance characteristics of our formulated antiscalants evaluated under field and laboratory conditions. It allows the designer to optimise the plant configuration and safely maximise recovery, and the operator to optimise dose rates to achieve the best economic operation without compromising reliability.

The software can normalise plant operational data to provide a standardised profile of the plant's performance from which a value judgement can be made on the need for intervention to maintain operating efficiency.



TIG Blending Facility

The TIG Group has designed, developed and is operating a fully automatic state of the art blending plant in the United Arab Emirates. The TIG Group blends complex chemicals for their own product range, as well as specialist formulations to suit the global market needs and requirements.





High Quality Basic Chemicals

TIG has an extensive number of supply options for high quality everyday chemicals. By matching these to your specific requirements and specifications we ensure that you receive both the optimum quality and the most economic price. We work closely with your production team to ensure that plant operation is never interrupted without a requirement for you to carry excessive levels of stock. Our product range includes:

- Production chemicals for industry
- Bulk chemicals
- Regeneration salt and chemicals

TIG Specialty Process and Industrial Chemicals

We can source a wide variety of performance chemicals from all over the world. Our product range includes:

- Cleaners and disinfectants
- Coagulants
- Corrosion inhibitors
- Antifoams and defoamers
- Lubricants
- Marine chemicals
- Organic precursors and intermediates

Due to our own production we can produce performance chemicals at economic prices and ensure just in time delivery.

Our local representative provides technical support directly to your operational staff, backed up by specialist advice from our consultant team.



Process Support and Training

TIG always delivers measureable results by giving you comprehensive service support for any process, new or existing.

We offer:

- Plant audits
- Troubleshooting
- Design review
- Upgrade assessment

We offer an extensive range of training programmes, all of which can be adjusted to meet individual requirements. Our team are skilled communicators, able to present water treatment and process related topics in a lively way. We offer our training courses in several languages.

Training will motivate, empower, challenge and educate your staff. It will promote responsibility and commitment, and ultimately will help you achieve operational reliability.

Test Kits and Consumables

TIG has a full range of test kits and consumables:

Test kits:

- Legionella
- SDI (Silt Density Index)
- Chemical test kits

Consumables:

- TIG filter media and gravel
- TIG activated carbons
- TIG resins



Membrane Laboratory Support

It is critical that your water treatment plant runs as it was designed. Whether it is new or existing, TiChemicals supports its customers with a comprehensive range of services, including:

- Membrane autopsies
- Complete water analysis
- Flat sheet test rigs
- Microbial analysis
- Membrane oxidation tests
- Scanning electron microscopy
- Product R & D
- Research studies with both partner companies and educational establishments



Product Approvals

Our membrane treatment products have received Chemical Compatibility Statements from major membrane manufacturers, including:

- Dow
- Hydranautics
- Ionics

The TIG product ranges include:

- KIWA certified products complying with KIWA-ATA criteria
- ANSI/NSF Standard 60 approved antiscalants and cleaning products
- UK DWI (United Kingdom Drinking Water Inspectorate) approvals
- CEFAS (The Centre for Environment, Fisheries and Aquaculture Science) approvals
- Quality Assurance approvals



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