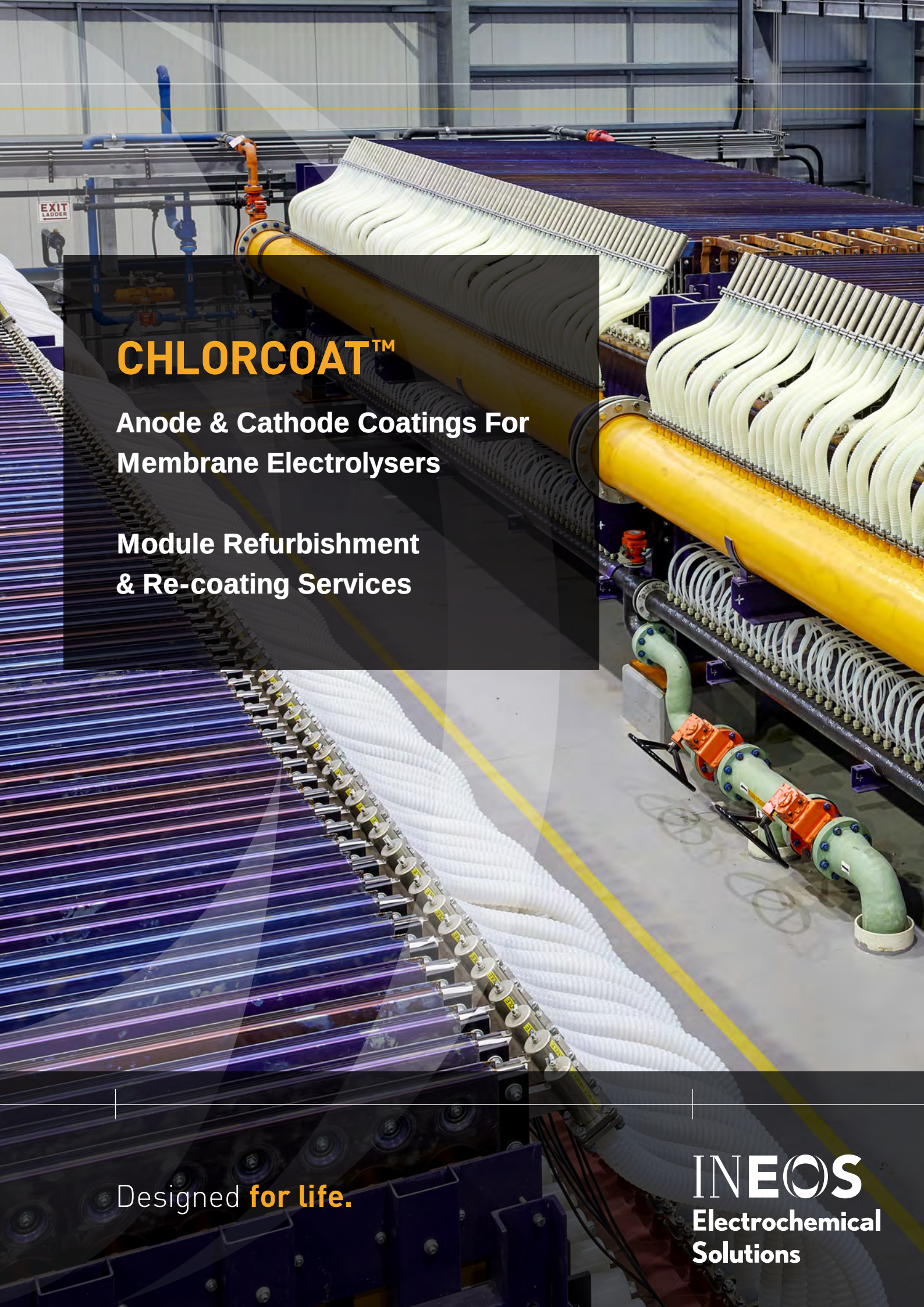

CHLORCOAT™

Anode & Cathode Coatings For Membrane Electrolysers

Module Refurbishment & Re-coating Services

Designed **for life.**

INEOS
Electrochemical Solutions

OUR CHLORCOAT™ HIGH PERFORMANCE COATINGS ARE **PROVEN TO MAXIMISE ELECTROLYSER PERFORMANCE**

All electrode coatings are not the same, and we've developed a range of proprietary CHLORCOAT coatings to make sure you get the best from your electrolyser. By driving reduced power consumption and lower operational costs over your electrolyser's lifetime, CHLORCOAT coatings out-perform alternatives and are backed by industry leading warranties for long-lasting peace of mind.

CHLORCOAT Cathode Coatings:

Provide resistance to impurity poisoning, reverse currents at shut-down and 16 year warranties

- **Electrocatalytically promotes H_2 evolution at low voltage**
- **CHLORCOAT contains precious metals for resistance to key life-limiting events**
- **Over potential occurs when additional voltage is generated by the surface resistance of a coating. Trials have proven that CHLORCOAT cathode coatings demonstrate superior performance over time**
- **Our cathode coatings lose no catalyst when subjected to reverse current, unlike alternative coatings, making them resistant to adverse shutdown conditions**
- **Supplied with an industry-leading up to 16 year coating warranty as standard**

Our experience is your advantage

As we research and develop our own electrode coatings, INEOS understand the challenges our customers face. By operating our own electrolyser plant we've overcome the same issues ourselves. Our many years of experience in the design and manufacture of anode and cathode coatings, means that these are the coatings we use across our own electrolyser product range and are even applied in other electrolyser technologies. Because we're in control of this process, our customers can be sure that our coatings meet the highest quality standards for maximum performance.

When you need us, we're with you

Our in-house technical teams continually develop and improve coatings that deliver performance advantages. We also support our customers with testing and coating analysis services, either in our well equipped labs or on site.

CHLORCOAT Anode Coatings:

Deliver up to 20mV energy savings, low chlorate & high alkali wear resistance

- **For the electrocatalytic promotion of Cl_2 evolution at low voltage**
- **Low over potential - In trials CHLORCOAT over-potential is up to 20mV lower than alternative coatings at 6kA/m², saving up to 14kWh/te NaOH**
- **Superior alkali wear performance - Tests indicate alkali wear resistance of CHLORCOAT coatings is up to 20% better than other anode coatings**
- **Lower exit brine chlorate values - our anode coating range includes a 'low chlorate' coating. In operation with pH7 brine, 'per pass' increase in exit brine chlorate values are 16% less than alternative coatings, reducing downstream treatment**
- **Up to 12 year warranties available as standard**

A ONE-STOP OPERATION FOR **FAST AND EFFICIENT MODULE REFURBISHMENT AND RE-COATING**

Dedicated to the refurbishment of all types of membrane electrolyser electrode, our extensive purpose-built refurbishment and CHLORCOAT coating facilities re-life your electrolyser elements and electrode structures to the highest operating efficiency for production peace of mind.

With dedicated customer service, technical support and manufacturing teams to manage the process, we deliver a first class service that reduces production downtime and operational costs.

We Refurbish And Coat Many Different Types of Membrane Electrolyser

/ BICHLOR, UHDE Generation 3 to 6, n-BITAC, nx-BITAC, MGC and MDC are just some of the technologies that we refurbish

/ Repair and coating of electrodes, flanges, coated mesh and feed tubes

/ In-pan coating of single element technologies

/ Supply of new coated nickel / titanium meshes for customer installation

YOUR PLANT IS **IN THE SAFEST HANDS**

- **CHLORCOAT coatings are field proven in over 100 electrolyser installations around the world, with technologies such as INEOS, UHDE, CEC, AK, or ELTECH**
- **In-pan re-coating provides a significant saving for customers, eliminating the removal and re-installing of meshes and can save the purchase of new mesh / louvres**
- **Benefit from our experience as electrolyser operators and our extensive coatings research and analysis capabilities**
- **Our highly skilled refurbishment engineers have many years experience in repairing and fabricating in nickel and titanium and their alloys**
- **Our first-class processes are managed to both ISO9001:2015 and ISO14001:2015, demonstrating our commitment to quality and the minimisation of environmental impact**

Our 6 Stage Coating & Refurbishment Process:

Following our six-stage process, refurbished electrodes are ready to operate efficiently and effectively – with all the risk-free reassurance of our industry-leading warranties.

1. Pre-work inspection & assessment
2. Refurbishment & repair (mesh, flange & pan repair)
3. Surface preparation (grit blasting, grit removal, washing & drying)
4. Air pressure and/or dye penetrant testing (if required)
5. Coating with our CHLORCOAT high performance anode and cathode coatings
6. Final quality inspection, including contact polishing

Optional Exchange Module Pool System

Many operators choose to store additional modules on site and operate a rolling changeover maintenance strategy that minimises downtime during refurbishment and ensures continuous production.

As an alternative option to this, INEOS technology users can access our free-of-charge rotational exchange pool of anodes and cathodes that we send to you in advance of electrolyser refurbishment. This minimises electrolyser shut-down time as modules are built in advance of a maintenance shut-down, ready to be installed.

WHO WE ARE AND **HOW WE HELP YOU**

At INEOS Electrochemical Solutions, we understand chlor-alkali from an operator's point of view because we've spent many decades operating an electrolyser plant of our own. With first-hand experience of the challenges you face each day, we create state-of-the-art products designed with longevity and ease of maintenance in mind.

Supported by our robust, world-leading technology and our outstanding in-house expertise, you're able to maximise your operational uptime and cut overall lifecycle costs. And with direct access to our specialist teams whenever they're needed – and wherever you are in the world – you enjoy the outstanding service you deserve.

We're operators designing for operators – and we support customers like you for life.

Find out more

For more information about BICHLOR electrolysers and CHLORCOAT coatings, visit our website at:

www.ineos.com

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