ISO 12944 revision FAQs

22/02/18

What is ISO 12944 and how is the standard used?

- The ISO organisation and standards in general were founded with the idea of answering a fundamental question: “What's the best way of doing this?”
- The ISO 12944 standard is a series of instructions intended to guide the professional to the required corrosion protection. It is the main international standard for corrosion protection of steel by paint

ISO 12944 was developed in the 1990’s, and the first edition was published in 1998

What changes does the new revision include?

- There are many changes in this revision of ISO 12944, some of which have a practical impact on how to protect steel against corrosion by using paint. A few of the most important changes are highlighted below:

New durability category – Very high

New corrosion category - CX

Update of DFT values which have become normative

New ISO 12944 Part 9 for Offshore constructions

For a full overview, please visit our ISO 12944 page which includes a webinar detailing the changes in more depth. http://www.hempel.com/en/protective/standards-and-certifications/iso

How will these changes affect me?

- How the changes will affect you will depend on many different parameters
- At Hempel, we are implementing the revised edition of ISO 12944 in many aspects of our business, from research and development through to technical services and marketing communications. We are prepared and ready to support you to ensure you have a smooth transition to the revised edition
- To better understand how these changes may specifically affect you in your business area, please contact your local technical representative

How do I obtain a copy of the standard?

The ISO standard is under copyright of ISO.org. It can be purchased either in electronic or paper version on the official ISO website.

https://www.iso.org/store.html

The full revision is now published and available through the ISO store

When can we choose a coating system based on the new ISO 12944?

- Our technical teams are prepared and are currently undertaking testing on our coating solutions
- Our current coating systems are tested and approved against the previous ISO standard along with many other certifications and standards across the world. Backed up by the technical expertise provided by Hempel, these are available today
- For more information, please contact your local technical representative

Will Hempel provide any certificates of durability confirmation to contractors and other relevant stakeholders, or will we have to do our own independent lab testing?

Once our system testing is complete, we will be able to provide a number of certificates from third party institutes. These certificates are public and can be distributed to contractors.

How do you evaluate the expected lifetime of a coating system according to the new standard?

The standard not only takes into account the laboratory testing (salt spray, ageing, chemical resistance etc.) but also considers the vast industrial knowledge gained on these coating systems through years of practical experience in corrosive environments. The practical experience is reflected in ISO 12944 Part 5, since the suggested systems are based on this extensive industrial experience.

You can find more detailed information in *ISO 12944 Part 6, point 4.1 – relationship between artificial ageing and natural exposure*

Does the new ISO affect any local certifications?

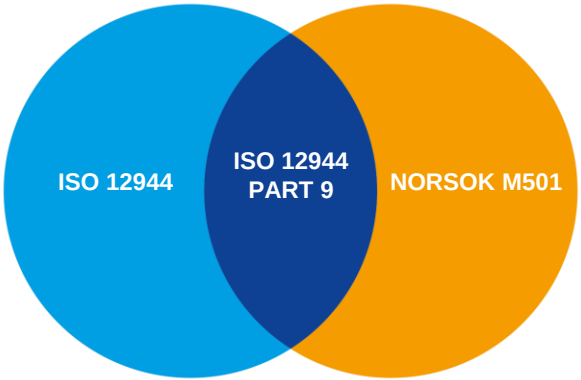
In the short term, we do not expect the changes to ISO 12944 to affect local certifications such as ACQPA in France, Blatt in Germany or UK Highways Certification in Great Britain. These standards are usually designed to meet specific local requirements and are not as such related to ISO 12944.

In the longer term, some local certifications might be influenced, since ISO 12944 is one of the most common standards in the coatings industry

What is the link between ISO 20340 (now ISO 12944 Part 9) and NORSOK?

ISO 20340 is now named ISO 12944 Part 9. NORSOK covers paint systems for offshore structures not covered by ISO 12944 Part 9.

ISO 12944 parts 1-9
- International standard
- Other land based systems



NORSOK M501
- Other systems for offshore not in ISO 12994

You can find more information about NORSOK on norsok.hempel.com

ISO 12944 part 9
- Formerly 'ISO 20340'
- Systems and tests for offshore

Are there any areas within anti-corrosive coatings where ISO 12944 does not apply?

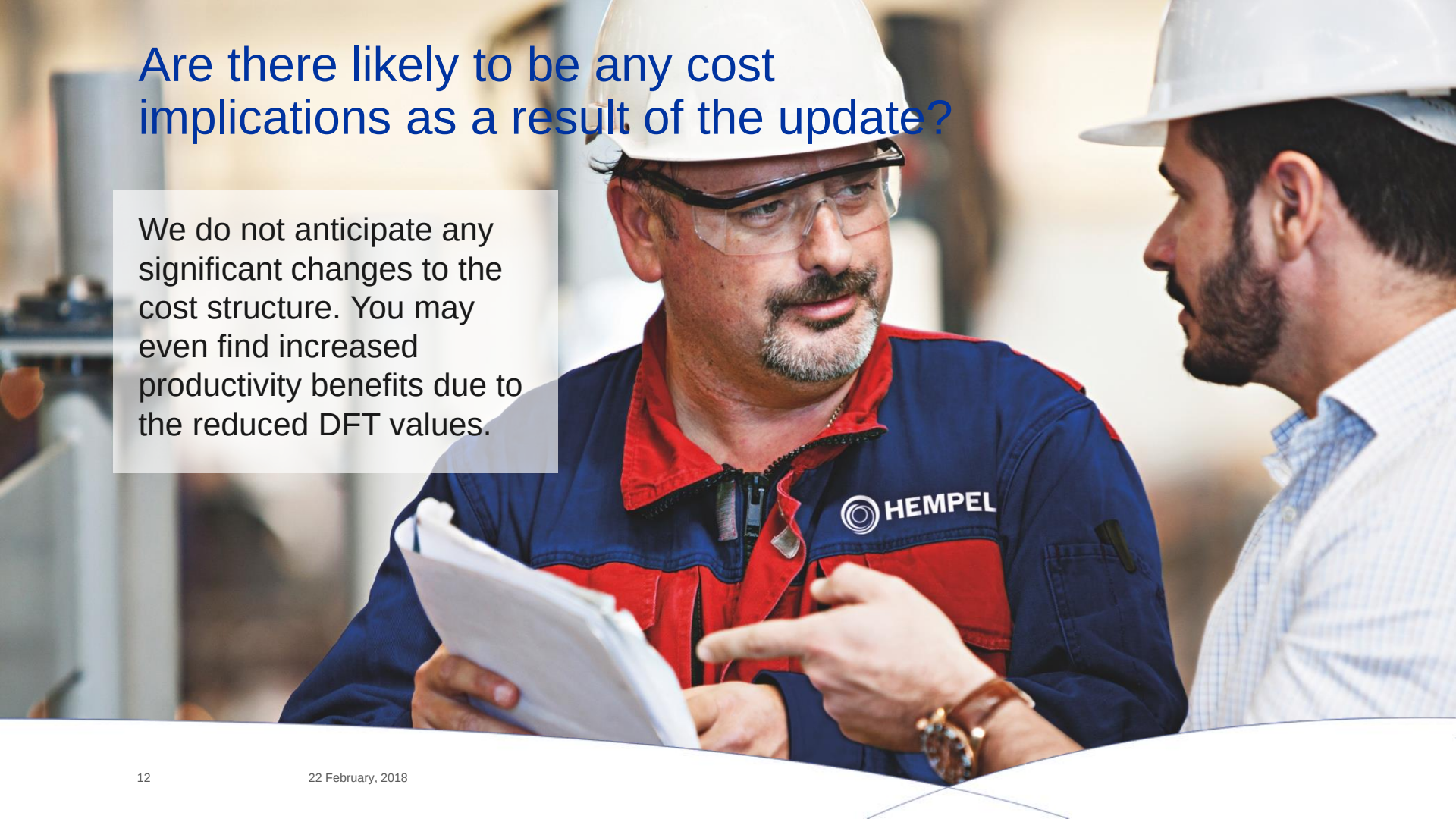
Yes there are exceptions and these are defined directly in the standard.
The most important exceptions are mentioned below:

- ISO 12944 starts with >3mm steel thickness, meaning that all thinner materials are not directly covered by ISO 12944. In reality however, the ISO 12944 standard is also often applied to thin materials such as containers
- Tank linings
- Intumescent passive fire protection coatings (although the anti-corrosive part of the intumescent coating system is part of ISO 12944)
- CUI – corrosion under insulation, or any other areas outside the ambient temperature range
- High alloyed steel
- Rebars for concrete

For more information, please contact your local technical representative

Are there likely to be any cost implications as a result of the update?

We do not anticipate any significant changes to the cost structure. You may even find increased productivity benefits due to the reduced DFT values.



How should I interpret DFT in the different parts?

In some parts of the new ISO 12944, some differences in DFT can occur. The two most important differences are explained below:

Immersion

- In ISO 12944 IM2 the NDFT* is 380 mic. whereas the min. DFT in ISO 20340 IM4 is 350 mic.
- In practice, these two thicknesses will be more or less the same
- *NDFT is nominal dry film thickness, and here we apply the 80/20 rule. So in principle the min DFT of 350 mic. can be a stricter requirement

Offshore systems in part 9

- ISO 12944 Part 9 is equivalent to the old ISO 20340, which has now ceased to exist. CX is the new corrosivity category covering offshore (previously C5M)
- In the old revision of ISO 12944 and ISO 20340, there was a slight contradiction between the DFT in C5M. In ISO 12944 it was 320 mic. and in ISO 20340 280 mic. However, in ISO 12944 it was specifically for high durability, whereas there was no durability in the ISO 20340.
- In the new ISO 12944 part 9 there is only one durability for the CX category – High – whereas the Very High does not exist. Example: C5 very high – NDFT is 320 mic. (part 5), CX Offshore – min DFT is 280 mic. (part 9)
- *NDFT is nominal dry film thickness. Here we apply the 80/20 rule, so in principle the min DFT of 280 mic. can be a stricter requirement

Could we use a system for C5, very high durability, but with lower thickness and less number of layers?

- New innovative coating technologies may provide equivalent corrosion protection at lower NDFT and/or reduced MNOC compared to the current coating technologies covered in ISO standard
- Performance of these new coating technologies should be proven by a combination of experience, e.g. field applications, and/or laboratory testing according to ISO 12944-6 which should be reported by an independent test laboratory
- When referring to ISO 12944/5 or ISO 12944 in general, deviations should be noted, e.g. ‘in the suggested system the recommended thickness of the zinc primer has been reduced from 60 to 30 microns due to the documented extraordinary performance of the primer (Avantguard series). This is also reflected in an overall reduction of 30 mic. in the full system DFT’

What exactly is brackish water?

- In the Immersion categories in ISO 12944, a distinction between types of water, incl. brackish water, is made
- Brackish water typically occurs where fresh water is mixed with sea water e.g. in a delta where a river meets the sea. The concentration of salt in brackish water may therefore vary
- Brackish water is not defined in the standard but as a general guideline we can say that sea water (salt water) will have an average salt content of about 3.5%, whereas brackish water will be lower, around 0.5-3%

What is the difference between the corrosivity categories IM2 and IM4?

- IM2 is immersed in salt water or brackish water but without any cathodic protection
- IM4 is immersed in salt or brackish water with cathodic protection - either with sacrificial anodes or with ICCP

What is an A/B rupture mentioned in part 6 – laboratory performance test?

- A/B rupture is a break between the substrate and the primer coat (= adhesive break)
- Adhesive break - break between layers
- Cohesive break - break in a layer
- You can find more information about this in ISO 4624