DEKRA Rail brochure

Damage investigation

Learning from defects, preventing defects

Damage investigation for improving safety and optimizing maintenance

A broken wheel or rail, the breakdown of a circuit-breaker, a damaged pantograph, a points failure:
If unforeseen damage to a structure occurs or one of your systems unexpectedly fails, usually immediate measures are taken to ensure safety and availability. What's more, though, you'll want the cause investigated so that you can preclude damage and failures happening in the future.

DEKRA Rail helps you identify the cause of the damage

Often, major damage provides reason enough for asset managers like yourself to call in external help. If your own experts and technicians don't have the right specialist know-how, or are unable to examine the cause objectively enough, specialists at DEKRA can be called in to tell you exactly what investigation is necessary to provide an effective diagnosis of the cause and the full facts of the case. Together we will then examine the damage suffered and the fail mechanism. It's usually wise to have all components systematically analyzed.

To do this, DEKRA makes use of several unique and flexible test facilities and can fall back on an in-depth knowledge of rail systems and their applications. Furthermore, DEKRA investigators act independently and impartially.

Using their collective know-how and insights, the best possible measures can be taken to bring about improvements in operational lifetime, reliability and safety.

How do the results of damage inspection actually help?

First and foremost, damage inspection aims to establish the exact cause of the component's failure. The results of damage inspection can be applied to help prevent the same damage recurring in the future. For example, the following measures might be implemented:

> changes in the construction or use of other materials,
> optimization of the production process,
> introduction of component or system testing prior to operationalization,
> changes in usage or the maintenance regime, and
> implementation of regular inspection, for example, using NDT.

Improving operational lifetime, reliability and safety through damage investigation



DEKRA Rail testing facilities

DEKRA Rail has its own extensive materials and chemical laboratory and can also make use of the other well-equipped laboratories for mechanical, physical and chemical investigation managed by other DEKRA business units or partners.
This means that material properties can be identified, components analyzed statically or dynamically, and accelerated aging investigated.

Here are just a few of the test facilities:

> Mechanical testing: tensile and pressure strength testers, fatigue test benches, impact testers.
> Metallurgical instruments: various hardness testers (Vickers, Brinell, Rockwell and Equotip), optical microscope and electron microscope.
> Chemical analyses: chemical composition, influence of chemicals on the construction.

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