

## Corrosion Behaviour of Equipment in High temperatures and Corrosion Resistant Alloys

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There are many damage patterns to high temperature corrosion which result from the fact that the materials are exposed to many kinds of environments and high temperatures.

Damage patterns can be roughly divided in two categories.

One is when the materials are damaged mainly by the effect of environment factors.

That is, when the materials are damaged by (1) high temperature oxidation, (2) steam oxidation, (3) molten salt corrosion, (4) high temperature particle erosion and erosion/corrosion, (5) high temperature sulfurization, (6) carburizing, (7) metal dusting, (8) nitriding, (9) high temperature chloride corrosion, (10) hydrogen attack, (11) liquid metal corrosion and so on.

The other is when the damages are caused by the degradation of characteristics of the materials themselves exposed at high temperatures.

That is, the materials are damaged through (12) thermal fatigue, (13) high temperature fatigue, (14) creep damage, (15) creep embrittlement, (16) sigma embrittlement, (17) 475 embrittlement, (18) tempering embrittlement, (19) graphitization and so on.

Phenomena and protective methods regarding the first category, damage caused by environmental factors, will be introduced using figures and tables mainly culled from my research.