

TECHNICAL DATA SHEET

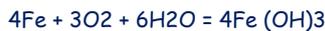
PROCESS OF RUSTING

TECHIONWHEEL Fasteners

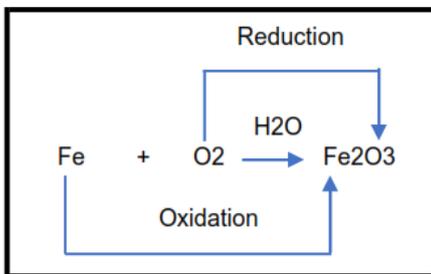
RUSTING

Air contains Oxygen (O₂) and Water vapour (H₂O) and both reacts with Iron (Fe) and turns into Iron hydroxide which further converts into hydrated Iron oxide called Rust. Basically, it is Oxidation-Reduction reaction. Rusting process increases in CO₂ or SO₂ Environment. Rusting Occurs only in Iron and Iron-containing alloys like steel.

Rusting Reaction:



$\text{Fe}(\text{OH})_3 = \text{Fe}_2\text{O}_3 \cdot \text{XH}_2\text{O}$ (Iron Oxide / Rust), a Reddish-brown flaky Substance.



PREVENTION

Prevention from rust is to cut the air and Moisture contact of the Iron Containing alloys i.e. steel, which is possible with the followings:

1. Painting
2. Oiling
3. Greasing
4. Galvanizing (Zinc Coating)
5. Plastic Coating

Water molecules have a positive (Hydrogen) and Negative (Oxygen) poles and they attract each other strongly through hydrogen bond but Oil does not have charged ends and held together with weak forces (Vander Waals Forces) and hence Oil and Water do not mix due to different molecular properties.

Also, Oil density is less than Water and hence lighter material (Oil) floats over heavier materials (Water). Even emulsifier (Soap) which acts as a bridge between two different densities fluids (Oil and Water) and hence the rule **Like dissolves like** follows.

TEST METHODS TO CHECK PROTECTION

1. Humid Box Test
2. Salt Wipe Test (Accelerated Test)
3. Touch and Smell Test (Customer Acceptance)
4. Scratch Test (Film Strength)



Techionwheel Private Limited

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