TECHNICAL BULLETIN

Progressive Metals

MARCH 2025 | FOR PROGRESSIVE METALS

Corrosion Resistant Steel

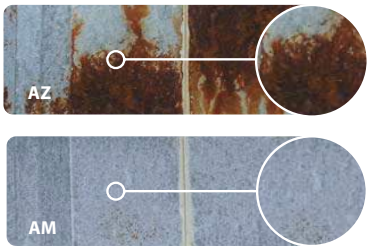
Created by BlueScope Steel Inc., this product is a highly corrosion-resistant coated steel known as AM with Activate® Technology.

To ensure the durability and reputation of the next generation, a comprehensive testing program was conducted that included a series of accelerated laboratory corrosion tests, as well as a strong emphasis on real world outdoor exposure tests. A thorough and rigorous testing program ensured that the new product provided optimum performance.

LABORATORY TESTING

Over a 25-year period, more than 2,000 panels have been tested using Q-Fog cyclic testing and salt spray testing in laboratories.

To conduct accelerated corrosion testing in the laboratory, a Q-Fog machine exposes panels to a cyclic environment of salt-laden fog, heat, and humidity.

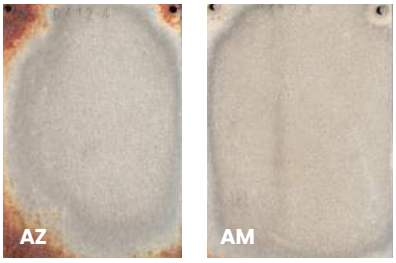


After 14 weeks of Q-Fog testing, next generation AM steel with Activate® Technology demonstrates its superior resistance to corrosion in a laboratory simulation of natural atmospheric corrosion.

REAL WORLD EXPOSURE

A further 3,000 panels have been tested at 22 different exposure sites around the world, including Australia and Lebanon, PA. Additionally, 50 building sites comprising a wide range of applications, as well as five purpose built test structures, have been tested in the real world, including extreme marine environments.

110 yards from breaking surf, Bellambi NSW.

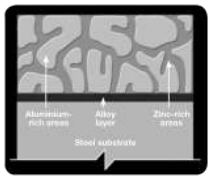


Images shown are 4" x 6" samples after 20 years exposure in a severe marine environment.

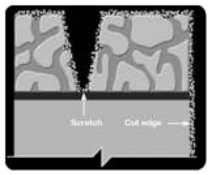
Finally, all test results were independently verified by the internationally recognized French Corrosion Institute (FCI). With a team of more than 80 engineers and technicians, FCI is one of the leading corrosion test centers in the industry and the scientific community.

AZ

aluminum/zinc alloy coated steel (superseded)



#1 - The entire metallic coating firstly provides barrier protection to the steel.

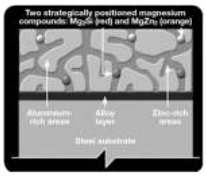


#2 - At cut edges and scratches, the zinc-rich interdendritic region, which is exposed to the atmosphere, corrodes preferentially providing sacrificial protection to the steel base. The resulting corrosion product then fills the cavities in the coating and inhibits further corrosion.

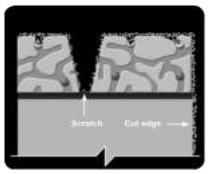
#3 - The aluminum-rich dendrites provide barrier protection while the zinc-rich region corrodes. Once the zinc-rich region has been exhausted, the aluminum-rich dendrites corrode slowly to provide some sacrificial protection.

Next Generation AM

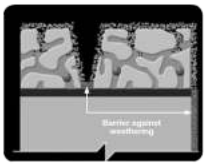
aluminum/zinc/magnesium alloy coated steel with Activate® Technology



#1 - Magnesium compounds are positioned in the metallic coating to activate at the start of weathering, when they are most vital for sacrificial protection.



#2 - At cut edges and scratches, corrosion of the zinc-rich interdendritic region provides improved protection to the steel base due to the presence of the magnesium compound. Magnesium silicide (Mg2Si) particles in the interdendritic channels act as additional barriers to slow corrosion and restrict corrosion pathways to the steel substrate.



#3 - The aluminum-rich region is modified to provide improved sacrificial protection of the steel base and resist red rusting for longer in more severe environments. It is also more efficient, so less aluminum-rich region is consumed to provide the improved sacrificial protection.