

What is Verdigris

by Jim Ewart

Verdigris is a greenish blue deposit (Patina) on copper brass and bronze. It is caused by atmospheric corrosion and consists of copper carbonate. You may wonder what does this have to do with HVAC/R equipment, a lot more than you could imagine.

When verdigris attacks a connection such as corrosion in Fig. 2, there is a contaminant build up usually caused by a moist environment around the control wiring. As conditions change and the humidity drops, the verdigris dries and there is now a buildup of gray powder. When conditions once again are moist enough to start the process again, another layer is laid over the existing corrosion. This continual buildup eventually causes the connection to expand and the contamination to migrate under the insulation causing it to split. This damaged area now becomes highly resistive which in turn further promotes the problem. The conductors because of electrolysis, lose some of their ability to carry current which will eventually affect the operation of the controls involved.

To correct this problem: Remove the

affected terminal connector and strip the insulation back to the point where there is no corrosion and install a new connector. Crimp using a proper crimping tool, side cutters are not recommended.

Tip: Because this problem arose from a specific moist condition in the appliance, you would be wise to clean the spade connector with alcohol or another cleaning medium (not sand cloth). When the two connections are made they should be lightly coated with petroleum jelly (Vaseline) that will help eliminate oxygen which promotes corrosion.

Tip: The plating on terminal connectors assists in preventing electrolysis, should they be constructed of dissimilar metals. Never use abrasive material to clean these terminals and never remove the plating.

Editor's note: James Ewart is a Certified Instructor of Journeymen

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