

TECHNICAL SERVICE BULLETIN

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PRODUCT: COPPER FIN TUBE ELEMENTS

SUBJECT: EFFECTS OF FLUX ON
COPPER TUBE

ON OCCASION WE HAVE WITNESSED PIN HOLE LEAKS IN COPPER FIN TUBE RADIATION. PITTING AND SUBSEQUENT PIN HOLE LEAKS CAN OCCUR WHEN FLUX FROM A SOLDERED JOINT IS ALLOWED TO PUDDLE IN COPPER TUBE FOR EXTENDED PERIODS OF TIME. THESE PIN HOLES USUALLY OCCUR WITHIN 2 TO 3 INCHES OF THE END OF THE COPPER TUBE NEAR THE SOLDER JOINT.

IN CONJUNCTION WITH REPRESENTATIVES OF THE COPPER INDUSTRY, VARIOUS FLUX MANUFACTURERS AND SEVERAL INDEPENDENT, SCIENTIFIC AND RESEARCH ORGANIZATIONS, WE POSED THE QUESTION OF WHY THIS HAPPENS AND WHAT CAN BE DONE ABOUT IT.

ALL DATA SO FAR INDICATES THAT CORROSIVE ACTION OF FLUX IS THE CAUSE. THIS CORROSION OCCURS FROM THE INSIDE OUT AND USUALLY IN SYSTEMS THAT ARE NOT IMMEDIATELY OPERATED. SYSTEMS THAT ARE FLUSHED AND FILLED AFTER COMPLETION ARE NOT SUSCEPTIBLE TO PIN HOLE LEAKS.

THE FOLLOWING RECOMMENDATIONS SHOULD BE CONSIDERED WHEN SOLDERING ANY COPPER TUBE.

1--USE A MILD ZINC AND AMMONIUM CHLORIDE NON-CORROSIVE TYPE FLUX IN PASTE FORM.

2--FLUX SHOULD BE APPLIED SPARINGLY IMMEDIATELY AFTER COPPER IS CLEANED. A SMALL AMOUNT CAN GO AS FAR AS A LARGE AMOUNT AND PREVENT THE POSSIBILITY OF RESIDUAL FLUX CAUSING PITTING.

3--FLUSH AND FILL THE SYSTEM IMMEDIATELY AFTER COMPLETION.