

SQ-06-38

GENERAL DYNAMICS
Electric Boat

JUL 19 2006

Subject: Lessons Learned from receipt of incorrect material (K-Monel)

Dear Valued Supplier:

Electric Boat Corporation has recently experienced several problems concerning NiCuAl material (commonly called K-Monel) and NiCu material (commonly called Monel). The most significant problems were as follows:

1. K-Monel material supplied in the wrong heat treat condition.

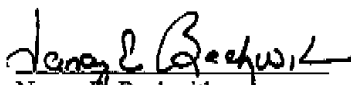
Electric Boat recently received K-monel material that was not annealed. The ordering data (drawing and specifications) clearly required the material to be annealed and age hardened. It was found that the supplier's inspection personnel misread the certified material test report. The report included results of a tensile test coupon that was annealed and age hardened, stating "Capability Heat Treatment (SSRT) Annealed at 1900 Deg F for 30 minutes then water quenched". The heat of material delivered had not been annealed. The inspector overlooked the fact that the test report did not cite the material condition such as "ANN" (an abbreviation for annealed) and did not understand that the "Capability" statement applied only to the slow strain rate tensile coupon, not the entire heat/lot of material. This error by the supplier resulted in replacement of the finished product at substantial cost to the supplier.

2. Monel material supplied when K-Monel material was specified.

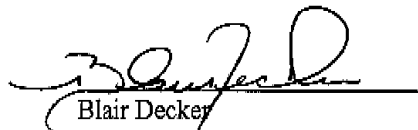
Electric Boat has recently received Monel (NiCu) material when K-Monel (NiCuAl) material was specified. The trade name K-Monel is commonly used for NiCuAl material per specification QQ-N-286. NiCu material per specification QQ-N-281, which does not contain Aluminum and therefore has lower strength, is commonly referred to by the trade name Monel. Although the trade names are similar the material properties are different and the two cannot be used interchangeably. Inspection personnel failed to verify material acceptability by the specification and properties rather than the trade name.

The above examples are being highlighted to enhance supplier awareness in an effort to reduce the likelihood of future similar mistakes. Electric Boat encourages suppliers to deploy such 'Lessons Learned' to internal and external stakeholders as a cost effective preventive measure. In this way we intend that Electric Boat and our suppliers can avoid the negative consequences, which can be substantial, that occur when incorrect material must be removed and/or returned for repair or replacement.

Very truly yours,



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