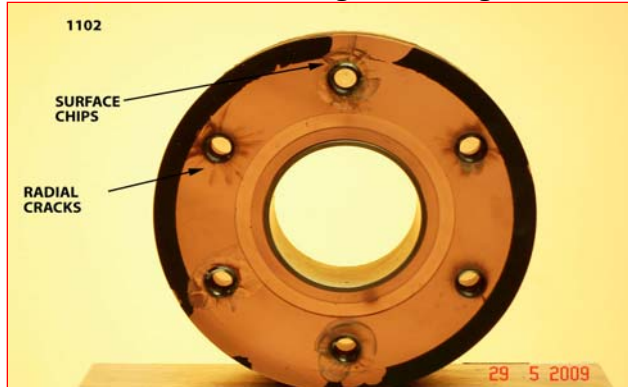


## METALLURGICAL LABORATORY FAILURE ANALYSIS CASE STUDY

Description	Cracking of Polycarbonate base around Helicoil® inserts.
Problem	Cracks around inserts discovered by customer upon receipt could compromise durability.
Analysis	SCC cracks were caused by Chlorine compounds in the cutting fluid. Driving forces for crack propagation most likely came from residual as well as imposed stresses.
Resolution & Recommendations	Eliminate cutting fluids containing halides and esters. Use FPI and/or sectioning to qualify first pieces.

Backlit section showing radiating cracks



Cracks seen upon disassembly



Cracks emanating in 2 planes



Cracks duplicated using coolant with chlorine

