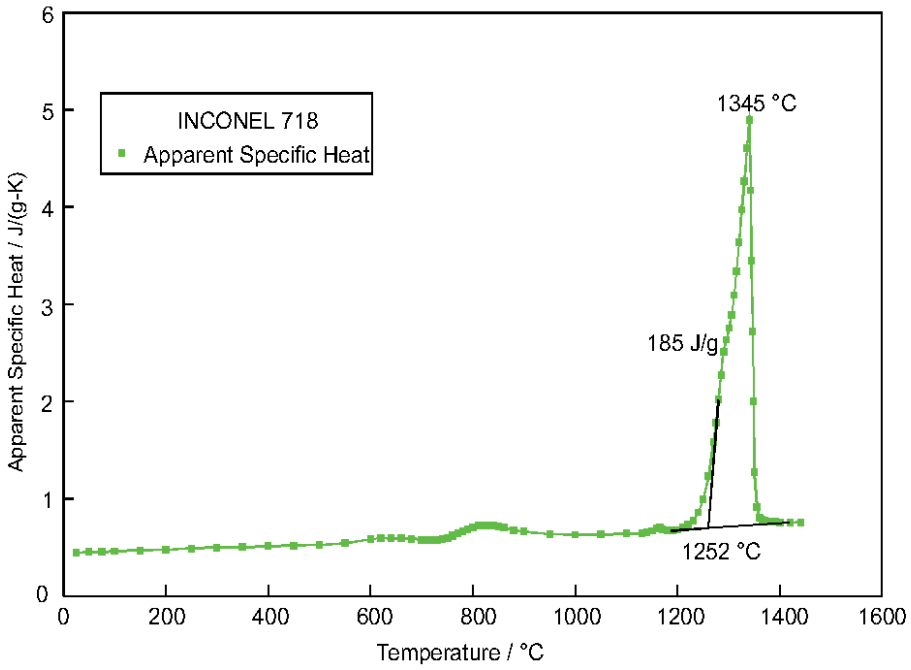
APPLICATION**SHEET**

Metals/Alloys · Aerospace
DSC 404 ***F1*** *Pegasus*®

Inconel 718

Introduction

Inconel 718 is a nickel-based superalloy (nickel-chromium-iron) with high strength. It is a corrosion-resistant nickel chromium material used at -253°C to 700°C. The age-hard-enable alloy can be readily fabricated, even into complex parts. Its welding characteristics, especially its resistance to postweld cracking, are outstanding. The ease and economy with which INCONEL alloy 718 can be fabricated, combined with good tensile, fatigue, creep, and rupture strength, have resulted in its use in a wide range of applications. Examples of these are components for liquid-fueled rockets, rings, casings and various formed sheet metal parts for aircraft and land-based gas turbine engines, and cryogenic tankage. It is also used for fasteners and instrumentation parts.



Test Conditions

Temperature range:	RT ... 1500°C
Heating rate:	20 K/min
Atmosphere:	Argon at 60 ml/min
Sample mass:	approx. 50 mg
Crucible:	Pt with alumina liner
Sample holder:	DSC type S

Test Results

The measurement was carried out during heating. Between 600 and 900°C, the influences of solid-solid-phase changes overlapped the specific heat. A further small endothermal effect was detected between 1000 and 1200°C. Melting of the alloy started at 1252°C (extrapolated onset). The heat of fusion was 185 J/g. It can be seen that the melting range is quite broad, typical for such kind of alloys.

NGB · Application Sheet 109 · E · 0621 · Technical specifications are subject to change.

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