NASA TECH BRIEF

Controlled Ferrite Content Improves Weldability of Corrosion-Resistant Steel

The problem:

Experience has shown that 347 CRES has a tendency to develop cracks during welding, both in the fusion zone and the adjacent heat affected zone. This fault is most prevalent in materials containing less than 4% calculated ferrite. Welding rod with controlled ferrite content is available but has no effect where joints are made without filler metal.

The solution:

An otherwise standard formulation of corrosion-resistant steel that incorporates additional restrictions on chemical composition to ensure a calculated ferrite content of from 5% to 9% in welded material. The equations restricting the chemical composition are based on the Schaeffler constitution diagram for stainless steel weld metal.

Note:

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
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Reference: B67-10069

Patent status:

No patent action is contemplated by NASA.

Source: Craig O. Malin
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