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# Cryogenic vessels — Toughness requirements for materials at cryogenic temperature —

## Part 1: Temperatures below -80 °C

*Réipients cryogéniques — Exigences de ténacité pour les matériaux à température cryogénique —*

*Partie 1: Températures inférieures à -80 °C*



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## Foreword

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The committee responsible for this document is ISO/TC 220, *Cryogenic vessels*.

This second edition cancels and replaces the first edition (ISO 21028-1:2004), which has been technically revised.

ISO 21028 consists of the following parts, under the general title *Cryogenic vessels — Toughness requirements for materials at cryogenic temperature*:

- *Part 1: Temperatures below -80 °C*
- *Part 2: Temperatures between -80 °C and -20 °C*

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## Introduction

The use of materials at low temperatures entails special problems which are to be addressed. Consideration is to be given, in particular, to changes in mechanical characteristics, expansion and contraction phenomena and the thermal conduction of the various materials. Austenitic stainless steel can transform from the austenitic to the martensitic phase when cooled down, leading to dimensional change that needs to be considered during design.

However, the most important property to be considered is material toughness at low temperatures.