

# Adhesives — Guidelines for the fabrication of adhesively bonded structures and reporting procedures suitable for the risk evaluation of such structures

ICS 83.180

# National foreword

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The UK participation in its preparation was entrusted to Technical Committee PRI/52, Adhesives, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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## Summary of pages

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# INTERNATIONAL STANDARD

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**21368**

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## **Adhesives — Guidelines for the fabrication of adhesively bonded structures and reporting procedures suitable for the risk evaluation of such structures**

*Adhésifs — Lignes directrices pour les procédures de fabrication et de  
rapport pour l'évaluation des risques liés aux structures collées par  
adhésifs*



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## Foreword

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ISO 21368 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 11, *Products*.

## Introduction

Adhesive bonding technology is widely used to fabricate many of the structures in the manufacturing industry, and in some companies it is the key feature to production. Such structures may range from microelectronic encapsulation to the structure and reinforcement of aircraft wings and bridges. Adhesive bonding technology is attractive to industry because it allows flexibility in the selection of materials, product design and product manufacture through to final assembly. As such, adhesive bonding technology exerts a profound influence on the cost of fabrication and the quality of the product, thus allowing significant production savings and a competitive advantage in comparison with traditional methods of manufacture. It is important, therefore, to ensure that adhesive bonding technology is carried out in the most effective way and that appropriate control is exercised over all aspects of the operation.

Within the ISO 9000 series of standards for quality systems, adhesive bonding technology is to be treated as a “special process” since bonds cannot be fully verified by subsequent inspection and testing of the product to ensure the required quality standards have been met.

Quality cannot be inspected into a product, it has to be built in. Even the most extensive and sophisticated non-destructive testing does not improve the quality of bonds.

For adhesively bonded structures to be effective and fit for purpose in service, it is necessary to provide controls, from the design phase, through material selection, into fabrication and subsequent inspection. Poor design for adhesive bonding will create serious risks and costly difficulties in the workshop, on site or in service. Inadequate consideration of the materials to be bonded and the choice of adhesive may result in bonding problems such as lack of adhesion or inadequate gap-filling of the structure. Adhesive bonding procedures have to be correctly formulated and approved to avoid imperfections. There must be supervision to ensure that the specified quality will be achieved.

To ensure the quality of adhesively bonded structures, management needs to appreciate potential sources of trouble and to introduce appropriate quality procedures.

