
**Gas welding equipment — Materials for
equipment used in gas welding, cutting
and allied processes**

*Matériel de soudage aux gaz — Matériaux utilisés pour le matériel de
soudage aux gaz, coupage et techniques connexes*

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 9539 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 8, *Equipment for gas welding, cutting and allied processes*.

This second edition cancels and replaces the first edition (ISO 9539:1988) which has been technically revised.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 8 via your national standards body, a complete listing of which can be found at <http://www.iso.org>.

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1 Scope

This International Standard specifies the general, and some of the special, requirements on materials used for the construction of equipment used in gas welding, cutting and allied processes.

Additional requirements on materials for some equipment are given in other standards. This International Standard is not applicable to materials used for the construction of welding hoses which are specified in ISO 3821.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 1817, *Rubber, vulcanized — Determination of the effect of liquids*

3 General requirements

Materials liable to come into contact with the process gases shall be resistant to the chemical, mechanical and thermal action of these gases under all operating conditions (see for example ISO 11114-1 and ISO 11114-2).

The properties of the materials shall be such that the function for which they are intended can be performed correctly within the temperature range of -20 °C to $+60\text{ °C}$.

Where dissimilar materials are in direct contact, steps shall be taken to prevent corrosion.

4 Specific requirements

4.1 Metallic materials

4.1.1 For use with acetylene and gases with similar chemical properties

Because of the risk of forming explosive acetylides, the copper content of materials liable to come into contact with such gases shall not exceed 70 % (mass fraction). The manufacturer shall not use any procedure resulting in copper enrichment of the surface. Nozzles and necks of blowpipes are an exception to this requirement.

NOTE International and national regulations may require different maximum copper contents than those specified here, but these remain generally within this range. The likelihood of the formation of copper acetylides depends on metallic corrosion and contamination which can be caused by many factors, e.g. moisture.