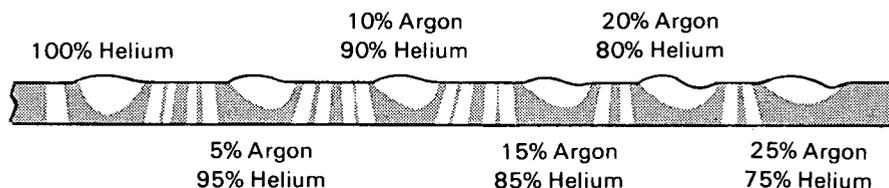


# NASA TECH BRIEF



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## Mixing Weld Gases Offers Advantages



Cross Section of Cover Pass Welds  
(Bead-on-Plate Method) Made With  
Various Percentage Mixtures of Argon  
to Helium. Note Undercut with 20 and  
25 Percent Argon Additions.

The addition of the inert gas argon to helium during gas tungsten arc (GTA) cover-pass welding in the horizontal position results in a number of advantages over employing 100 percent helium shielding gas. Among the advantages is a better controlled wider bead width, increased arc stability and reduction in heat input. Also, adequate filler material wetting and penetration pass coverage is possible with only one cover pass. These improvements will be useful to the welding trade for precision applications, particularly where a joint must also be a seal rather than just a structure.

Testing consisted of x-ray and penetrant inspections made on two series of six 2014-T6 aluminum alloy panels, observation of bead width-to-penetration depth ratio, and collection of room temperature mechanical property data.

### Note:

Further documentation is available from:  
Clearinghouse for Federal Scientific  
and Technical Information  
Springfield, Virginia 22151  
Price \$3.00  
Reference: TSP69-10145

### Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: M. M. Mendenhall and J. L. May  
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Category 05