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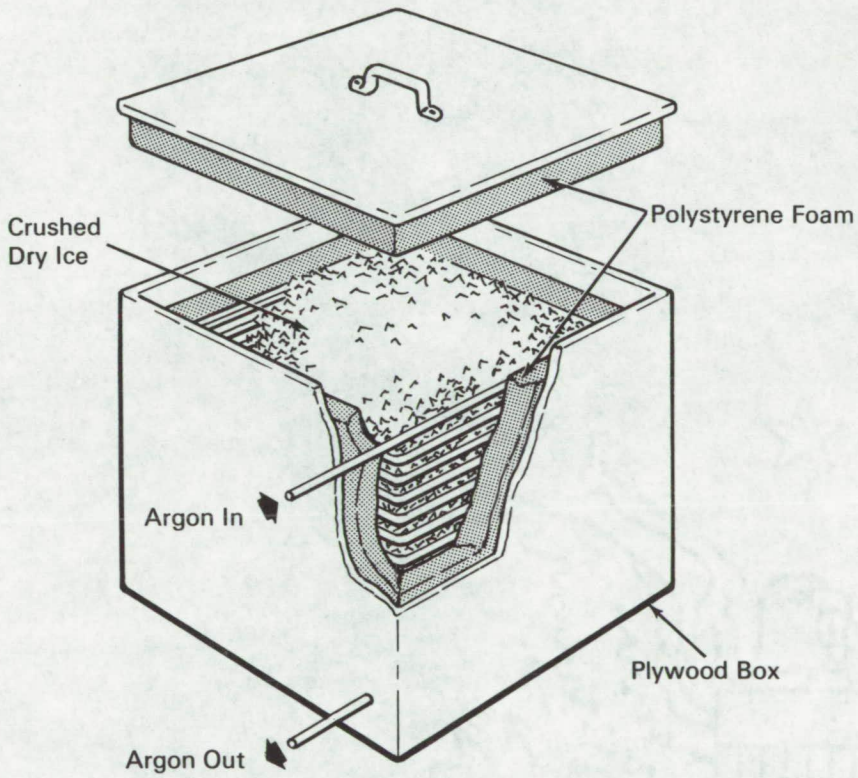
NASA TECH BRIEF

Argon Purge Gas Cooled by Chill Box



The problem:

Tungsten inert gas welding torch head components become badly charred by the high concentrations of heat in the weld area during welding operations. In order to reduce the charring action while welding, a means of cooling the argon purge gas is desired.

The solution:

The argon purge gas is cooled by routing the gas through a shop-fabricated chill box.

How it's done:

A box, 18 inches square by 12 inches deep, is fabricated of 3/4-inch marine plywood. The box and lid are lined with a 2-inch thick, pour-in-place layer of polystyrene foam insulating material. Approximately 50 feet of 1/4-inch copper tubing is wrapped around the inside perimeter of the box with an inlet and outlet extending through a wall of the box. The argon gas line is connected to the inlet, and the welding torch line is connected to the outlet. Crushed dry ice

(continued overleaf)

is packed in the box against the copper tubing. The argon gas is chilled as it passes through the tubing to a cooled state when it enters the head section of the welding torch and helps to prevent buildup of char.

Notes:

1. This innovation might find general use in the welding industry.
2. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Marshall Space Flight Center
   Huntsville, Alabama, 35812
   Reference: B66-10153

Patent status:

No patent action is contemplated by NASA.

Source: Lloyd W. Spiro
of North American Aviation, Inc.,
under contract to
Marshall Space Flight Center
(M-FS-560)