



Welding Technology Institute of Australia

FUME MINIMISATION GUIDELINES

Welding, Cutting, Brazing and Soldering

SCOPE

<u>Process</u>	<u>Typical Application</u>	<u>Typical Filler Metal (rod)</u>
Gas Braze Welding	Maintenance brazing of cast iron and steel.	Manganese bronze (AS1167, RCuZn-C)
Gas (Braze and Fusion) Welding	Braze welding of mild steel for low stress applications and welding of high melting point brass and bronze alloys.	Tobin bronze (AS1167, RCuZn-A)

Fluxes either as rod coating or separately applied, are typically boric acid/sodium metaborate mixtures but some eg. those used for tinning dirty cast iron also contain alkali fluorides.

FUME SPECIES

Filler metal (rod)

Copper, copper oxide, zinc oxide, tin oxide (negligible).

Flux

Boric acid dust, sodium metaborate.

HEALTH EFFECTS

Metal Fume

Prolonged exposure can cause irritation to eyes and nose, and/or metal fume fever. Tin oxide has low toxicity.

Flux Fume

High temperature boric acid fluxes are not significantly absorbed through intact skin or mucosa. With fluorides present, fumes are highly irritating to respiratory tract. Over exposure can cause nose bleeds and fluorosis (fluorine poisoning).

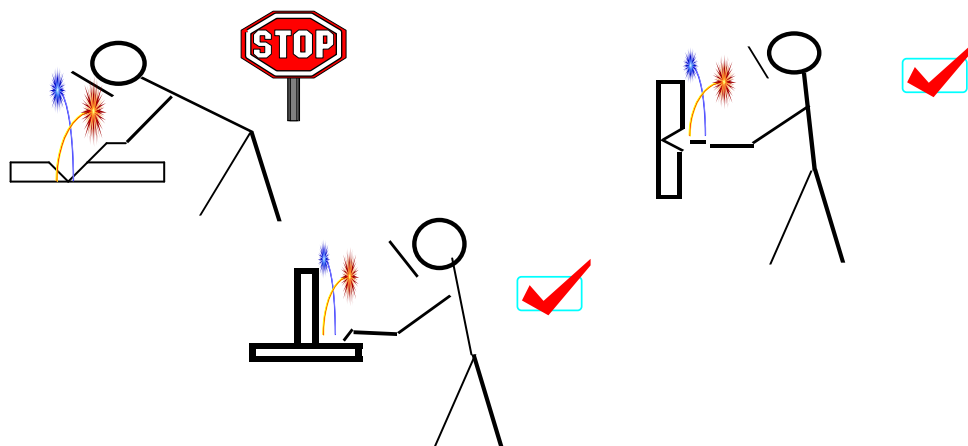


Figure 1. The welder's head should not enter the visible fume plume.