Technical Bulletin

JOHNSON MANUFACTURING COMPANY
Princeton, Iowa 52768-0096

JOHNSON'S SAFE FLUX-14 HEADER DIPPING FLUX
Part No. 18-00 Series

DESCRIPTION:

Johnson's Safe Flux-14 is extremely effective for brass, copper and steel soldering by dipping parts into molten solder. A major use is for automotive radiator and heat exchanger soldering of header plates to tubes. No corrosive residues remain after the fluxed areas are heated to above solder melting temperatures.

PHYSICAL DATA:

Specific Gravity	**1.158 ± .005 at 60° F (19.5° Be')**
pH	**0-1**
Appearance	**Colorless (Water Like)**
Odor	**Slight Surfactant Odor**

USAGE:

Safe Flux-14 concentrate should be diluted with an equal volume of water for radiator header dip soldering. The one part of water to one part of flux has a specific gravity of 1.081± .005 at 60° F. (10.5° Be').

Parts to be soldered are dipped into the flux and drained immediately before soldering. Extreme care must be taken to avoid wetting areas with flux that will not be heated to soldering temperatures. This heat is required to decompose the flux so that it cannot corrode the metal later.

Very special care must also be taken when dipping parts wetted with flux to avoid spattering of hot solder due to explosions of water in the flux into steam. First, flux must be drained as completely as possible before entering the solder bath to reduce the amount of flux being carried with the part. Slow entry of the part into the hot solder will dry the flux as heat transfers into the header.

Pre-heating of the fluxed parts enough to dry them, *but not enough to decompose the flux*, immediately before entering the pot is also practical. Fluxed and drained radiators are lowered slowly into the molten solder at an angle and gradually raised to vertical as the heat flows from the solder into the radiator. Properly done, this prevents flux explosions from blowing solder up the tubes. Solder flow and solder bond are extremely good with Safe Flux-14.

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HANDLING:

Safe Flux-14 contains free acid therefore containers should be non-metallic, such as acid resistant fiber reinforced plastic, polyvinyl chloride or polyethylene. Wear protective clothing and eye wear when handling this flux. Avoid mixing other chemicals with this flux. Please refer to the *OSHA Material Safety Data Sheet* for additional information.

WASTE DISPOSAL:

This flux must be neutralized with soda ash or lime before disposal. Further treatment may be required to remove metals dissolved into this flux during use. Beyond this, we cannot make specific recommendations due to variation in local laws.