



Technical Bulletin

JOHNSON MANUFACTURING COMPANY
Princeton, Iowa 52768-0096

JOHNSON'S BIO-BAKE BIODEGRADABLE, NEUTRAL pH, NON-TOXIC, ORGANIC SOLDERING FLUX Part No. Series 45-00

DESCRIPTION:

BIO-Bake was developed by Johnson chemists to meet today's need for a production soldering flux that is safer for operators to use and safer for our increasingly fragile environment. BIO-Bake is a non-toxic, biodegradable solution that may be diluted with water for many production applications. It contains no toxic chemicals as supplied and is therefore safer for workers who come in contact with flux on a repeated basis. This flux does not contain Bromides Chlorides or other Inorganic Metal Salts that can lead to corrosion of the finished product.

Johnson's BIO-Bake is a neutral pH soldering flux, both as supplied and when diluted with clean water. Most other production soldering fluxes are highly acidic (they contain free acid) even when diluted for use. Their free acid reacts with metals through ion exchange to produce metallic salts which build up in the flux tank, eventually reaching the point at which they begin to inhibit the soldering process. When other spent fluxes need to be changed, they must either be treated before being disposed of, or must be sent to an approved hazardous waste site, via an approved hazardous waste hauler.

Because Johnson's BIO-Bake has a neutral pH, it does not react with the base metals that come into brief contact with it. Therefore, BIO-Bake flux tanks that are properly filtered and maintained may last many times longer than other fluxes that contain free hydrobromic or hydrochloric acids. Johnson's BIO-Bake reduces the need to change flux tanks, thereby cutting the costs and liabilities associated with handling hazardous wastes.

Johnson's BIO-Bake is an organic salt solution that decomposes during the soldering process. Other organic soldering fluxes remain active until they reach the 500 -550° F temperature range. BIO-Bake contains non-toxic chemicals that can remain active up to 700° F. Many production soldering operations can benefit greatly from this higher active temperature range, i.e., oven baking and header dipping operations where several minutes of heat are required to bring the entire mass up to uniform temperature. This permits the use of preheat to minimize spattering of soldering in dipping operations. Immediately after soldering occurs, BIO-Bake vaporizes leaving the surface nearly free of corrosive residues. Any residues that do remain, may be removed without creating another hazardous waste.

Organic fluxes lend themselves nicely to manufacturing operations where new materials are soldered and the time/temperature relationships can be carefully controlled. Johnson Mfg. Co. has formulated this organic flux to perform for all radiator production soldering tasks. By establishing a proper flux maintenance program within your facility, it may be possible to utilize flux from a single tank for several different soldering operations. Example: use the flux from a filtered core baking tank as make-up flux for header dipping and/or torch soldering.



TO ORDER CALL (800) 747-0030, FOR SUPPORT CALL (563) 289-5123, TO SEND FAX (563) 289-3825, EMAIL TO johnsonmfg@aol.com

PHYSICAL DATA:

Specific Gravity	1.04 ± .005 @ 60° F
pH as shipped	6.0 to 7.0
Boiling Point	215°F
Physical Appearance	Clear to Slightly Cloudy Liquid
Odor	Organic Smell Upon Decomposition
Solubility in Water	100%

USAGE:

Johnson's BIO-Bake is concentrated as supplied so that it can be diluted with water for a variety of soldering applications. The following dilutions are suggested as a starting point: Radiator Core Baking - 3:1 to 4:1, Radiator Header Dipping - 2:1 to 3:1, Face Dipping - 3:1 to 4:1 and/or for Torch Soldering of New Materials - 1:1 to 2:1. Further dilutions may be possible depending on the product, soldering alloy and type of heat used, etc.

HANDLING:

A non-metallic container such as fiberglass, ABS, PVC or Polypropylene is preferred. Protect from skin and eyes. Do not swallow. Do not breathe fumes. *Refer to OSHA Material Safety Data Sheet for additional information.*