Soft Soldering Fluxes

Introduction

Johnson Matthey has a range of soldering fluxes predominantly designed for industrial soldering applications.

Flux Selector Chart

<table>
<thead>
<tr>
<th>Flux</th>
<th>Recommended For Use On</th>
<th>Corrosive / Non corrosive</th>
<th>Working Range °C</th>
<th>Product Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft Solder Flux No. 1S™</td>
<td>Carbon steel / stainless steel</td>
<td>Corrosive</td>
<td>180-350°C</td>
<td>1 litre</td>
</tr>
<tr>
<td>Soft Solder Flux No. 2S™</td>
<td>Copper / brass</td>
<td>Intermediate</td>
<td>180-350°C</td>
<td>0.5 litre</td>
</tr>
<tr>
<td>Soft Solder Flux No. 3S™</td>
<td>Copper / brass / carbon steel / stainless steel</td>
<td>Corrosive</td>
<td>180-350°C</td>
<td>1 kg</td>
</tr>
</tbody>
</table>

Soft Solder Flux No. 1S™
This highly active liquid is recommended for use on stainless and carbon steels, and is active up to 350°C where it possesses good wetting and spreading properties. The flux may also be used on non-ferrous alloys where there is a need for an active flux.
With some of the lower melting point alloys such as P5™ and P40™ the flow of the molten solder will be improved with a degree of superheat. The residues are corrosive and should be removed after soldering by immersion in hot or cold water.

Soft Solder Flux No. 2S™
The flux shows good wetting properties up to 300°C and is particularly effective with the tin based soft solders such as P5™ and LM0A™.
Soft solder flux No. 2S™ is a liquid intermediate / semi-corrosive flux for use on copper and brass.
The water-soluble residues are semi-corrosive. It is recommended that residues be removed to prevent any possibility of contamination after soldering.

Soft Solder Flux No. 3S™
Soft Solder Flux No. 3S™ is a semi fluid paste flux active up to at least 350°C.
It is recommended for use on all common engineering materials except aluminium. The flux is widely used on carbon and stainless steel with solders such as P5™ and LM0A™ and is effective on copper and brass with all solders including LM5™ and A5™.
Residues are corrosive and should be washed off using hot water.
Soft Soldering Fluxes

Rosin based or inorganic acid fluxes
Flux cored wire or soldering paste systems for use with tin-lead or tin-copper solders and containing rosin-based fluxes are available as ‘RMA’ systems without ‘activation’ and only trace halide content or with various levels of ‘activation’ from ‘RA’ (0-0.5% halide content) to ‘HA’ (typically 1% halide content).

Fluxed binder systems in this group are only suitable for soldering copper and brasses. The ability of these binder systems to solder a brass will depend upon the level of activation used within the flux. Residues from these systems are non-corrosive and may be left on components.

Fumes from rosin containing fluxes present a risk to health and safety and in particular can cause asthma. Fumes should be controlled to prevent exposure to operators.

For more information consult the HSE publications:
COSHH WL17 - Soldering: Hand-held with lead-base, rosin-cored solders
Controlling health risks from rosin (colophony) based solder