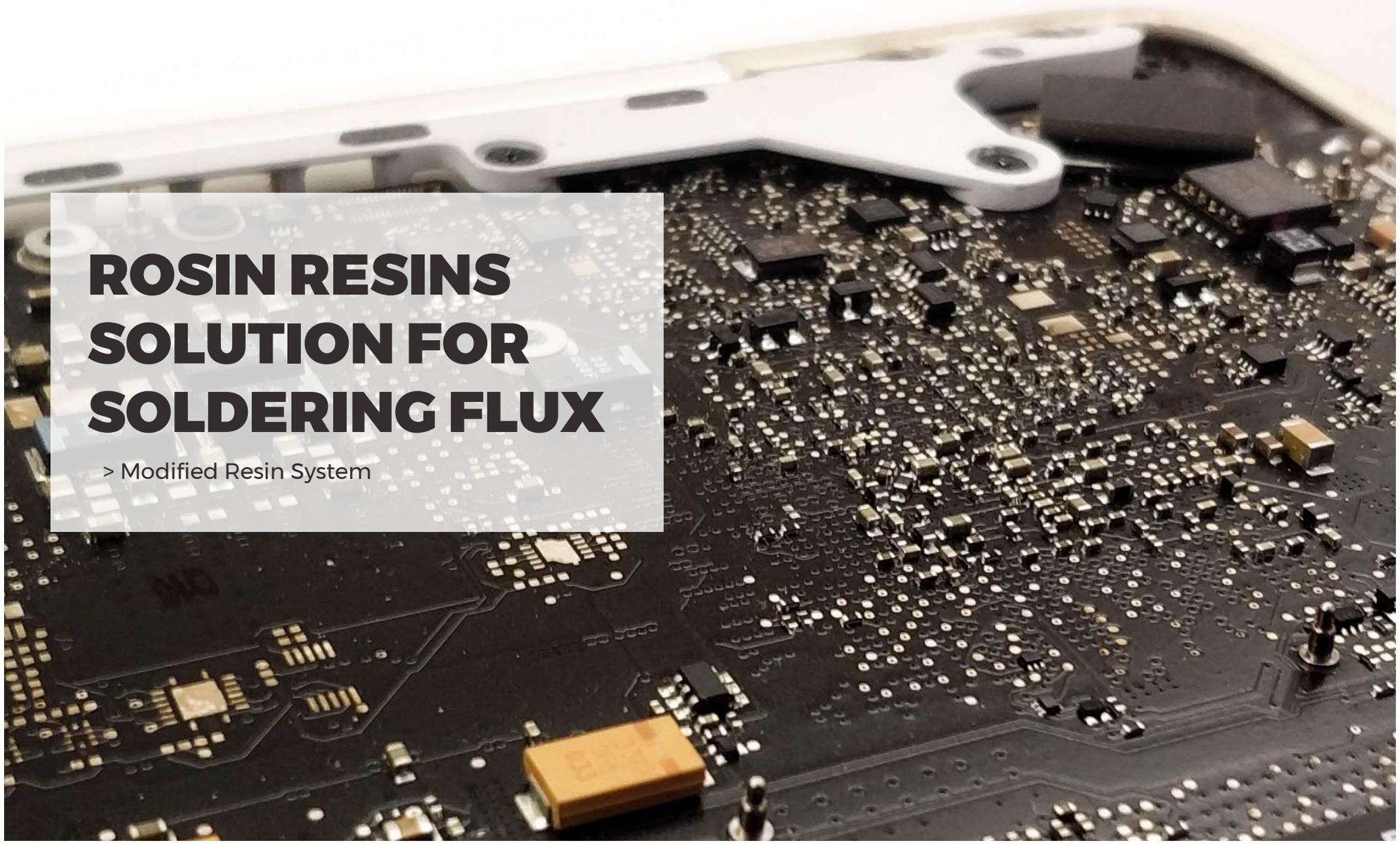


# ROSIN RESINS SOLUTION FOR SOLDERING FLUX

> Modified Resin System

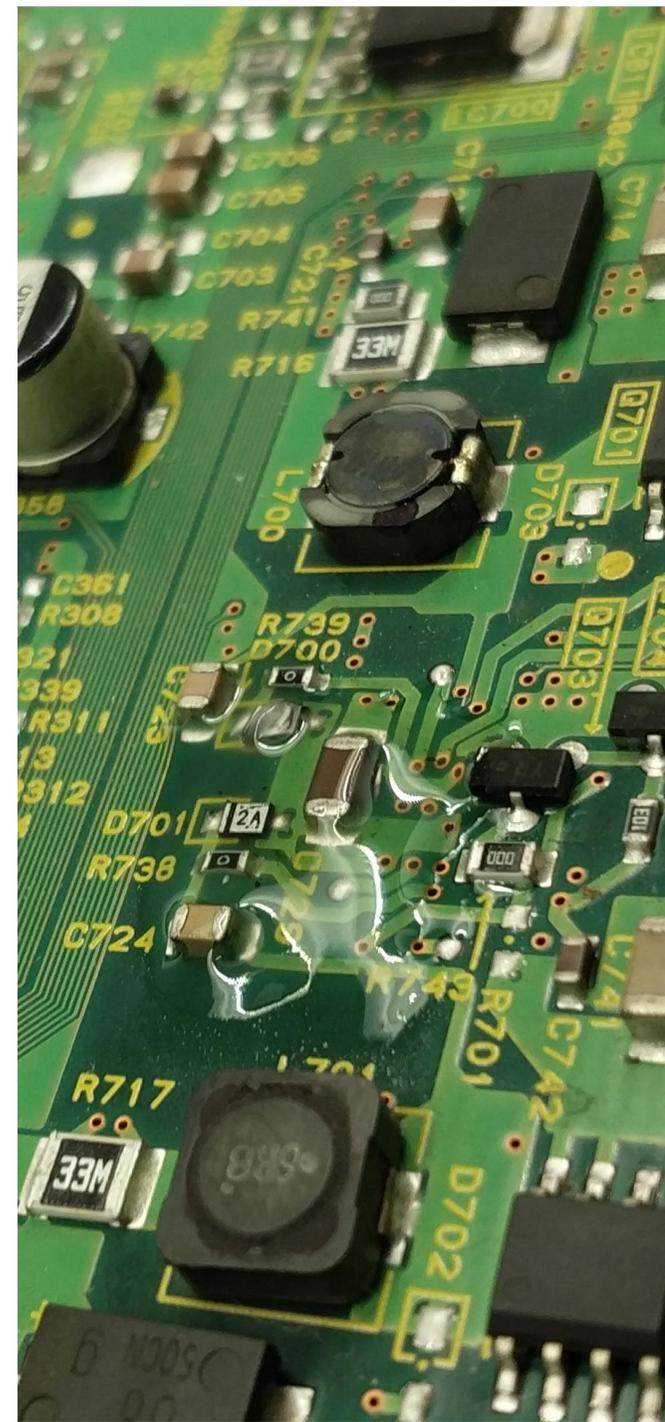
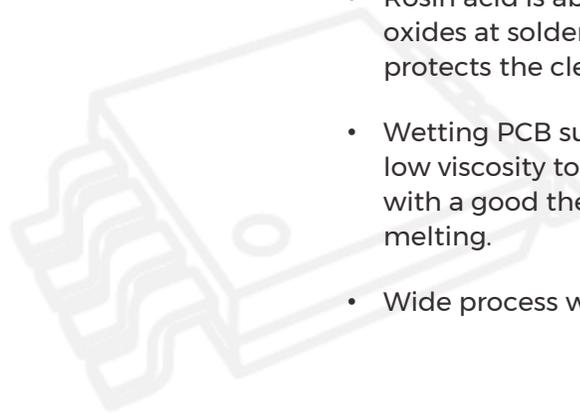


# SOLDERING FLUXES

Liquid soldering flux for electronics has the property to remove the oxidizing materials on the PCB surface. **Gum Rosin, Modified Rosins Resins** are the key raw materials have 1~45 %Wt. in the formulation of Rosin Fluxes, and have 2~8 %Wt. in the Low-Solids/No-Clean Fluxes. The actives of **rosin acid** remove the oxides and extending tin material on the PCB surface. Also forming a coating on the solder joints to prevent re-oxidation.

Rosin-based flux used for soldering in electronics industry because it has a combination of favorable properties:

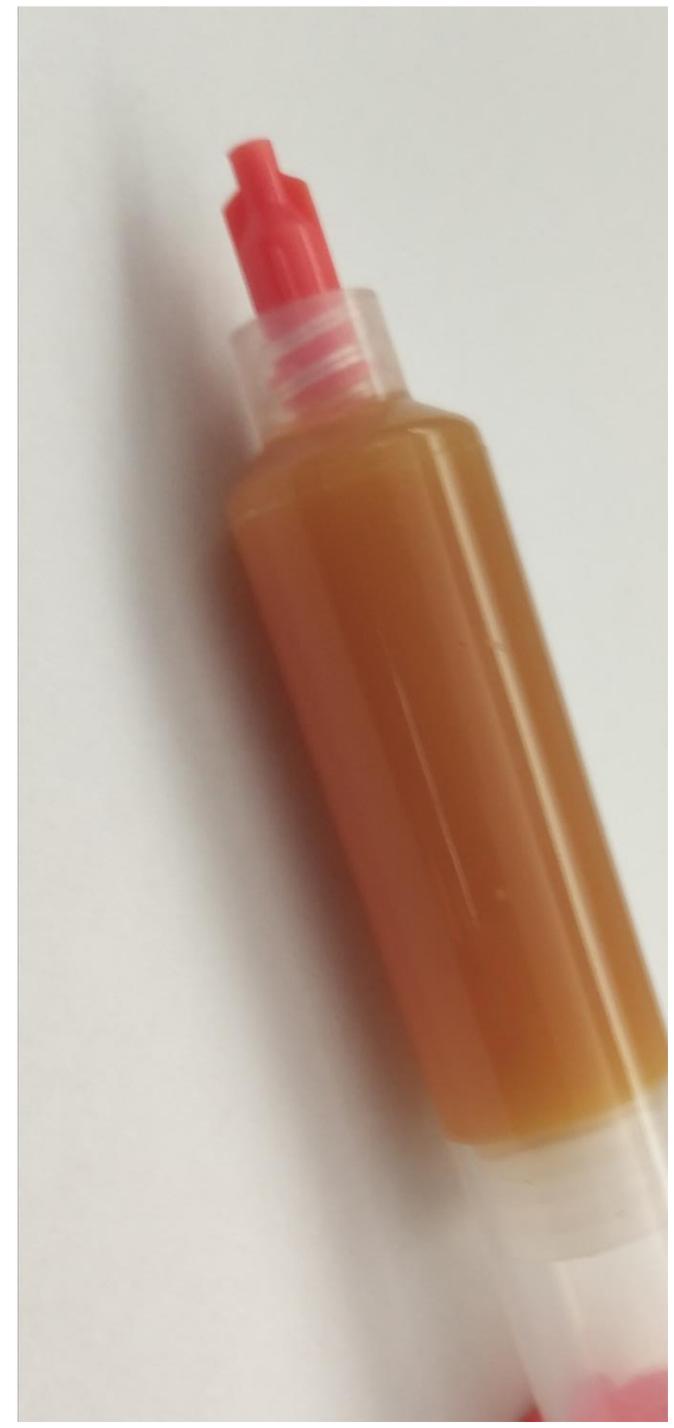
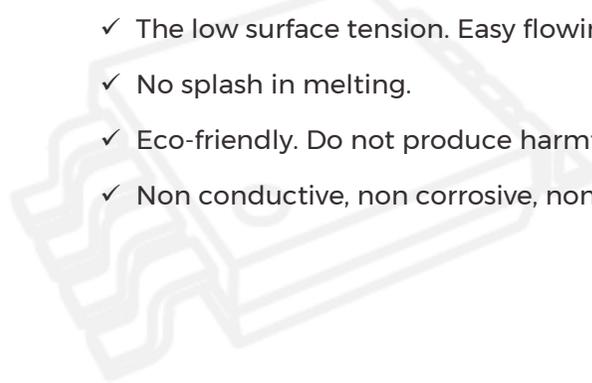
- Rosin acid is able to remove the metal oxides at soldering temperature and protects the cleaned metal.
- Wetting PCB surface and has a sufficiently low viscosity to remove reaction products with a good thermal conductivity when melting.
- Wide process window and long process life



# CHOOSE THE CORRECT ROSIN RESINS FOR SOLDERING FLUX

A correct soldering flux product is required following features...

- ✓ Removes the oxides and wetting the PCB surface.
- ✓ Melting as liquid soldering flux at the soldering temperature and forming a coating on the PCB surface.
- ✓ The brightness flux has heat stabilization, easy to dry, free of moisture and hygroscopy.
- ✓ The low surface tension. Easy flowing after heating.
- ✓ No splash in melting.
- ✓ Eco-friendly. Do not produce harmful gases and irritating odors.
- ✓ Non conductive, non corrosive, non side-effect of residues.



# IPC DESIGNATORS

## J-STD-004



Many Low-solids/No-clean fluxes contain two or more types of gum rosin, modified resins to achieve their best performance. **FOREVEREST®** supplies the full range of rosin resins for soldering fluxes.

Low-Solids/No-Clean Fluxes to the IPC designators						
FLUX TYPE	FLUX COMPOSITION	PARTIAL DESIGNATOR	SOLVENT	SOLIDS CONTENT (MOST COMMONLY)	DESIGNATOR CONTAINING HALIDES	MARKET PRESENCE/ AVAILABILITY
Low-solids/No-clean	Rosin	RO	Alcohol	2% to 8%	ROL1/0	Most Common
					ROM1/0	Rare
					ROH1/0	Never
	Modified Resin	RE	Alcohol	2% to 8%	REL1/0	Most Common
					REM1/0	Rare
					REH1/0	Never
VOC-free Low-solids/NC	Organic	OR	Alcohol (non VOC-free) Water (VOC-free)	1.5% to 6.0%	ORL1/0	Most Common
					ORM1/0	Occasionally
					ORH1/0	Uncommon

SOURCE: [Choosing the Correct Soldering Flux Types and Their Advantages/Disadvantages](#) © Eddie Groves, Jonathan Wol

# PRODUCT LIST



- Rosin resin color can effect the color of residues, especially on the BGA reworking process.
- A lower softening point will produce the sticky residues and may cause pseudo soldering.
- In manufacturing, the acid value of rosin resins can be used to measure the raw materials purity and process control level.

**Table 1. Modified Rosin List for Soldering Fluxes**

CODE	CHEMICALS NAME	CAS	COLOR	SOFTENING POINT	ACID VALUE	SUBSTITUTE
<a href="#">AR120240</a>	Acrylic Acid Modified Rosin	83137-13-7	●○○○○	●●○○○	●●●○○	
<a href="#">D459</a>	Disproportionated Rosin	8050-09-7	●●●○○	●●○○○	●●●○○	
<a href="#">H106</a>	Hydrogenated Rosin	65997-06-0	●●●○○	●●○○○	●●●●○	
<a href="#">MR75</a>	Maleated Rosin	8050-28-0	●●●●●	●●○○○	●●●●●	
<a href="#">DA125200</a>	Modified Rosin	-	●○○○○	●●●●○	●●●●●	Arakawa™ KE-604
<a href="#">FPR-95</a>	Polymerized Rosin	65997-5-9	●●●●●	●●●○○	●●●○○	
<a href="#">FPR-115</a>	Polymerized Rosin	65997-5-9	●●●●●	●●●○○	●●●○○	
<a href="#">FPR-140</a>	Polymerized Rosin	65997-5-9	●●●●●	●●●●○	●●●○○	
<a href="#">H101</a>	Water-White Hydrogenated Rosin	65997-06-0	○○○○○	●●○○○	●●●●○	
<a href="#">H103</a>	Water-White Hydrogenated Rosin	65997-06-0	○○○○○	●●○○○	●●●●○	Foral™ AX-E

# PRODUCT LIST



Table 2. Gum Rosin List for Soldering Fluxes

CODE	CHEMICALS NAME	CAS	COLOR	SOFTENING POINT	ACID VALUE	SUBSTITUTE
<a href="#">R/X</a>	Gum Rosin	8050-09-7	●●○○○	●○○○○	●●●●●	
<a href="#">YPR/WW</a>	Gum Rosin	8050-09-7	●●○○○	●○○○○	●●●●●	

Table 3. Colorless Rosin Ester List for Soldering Fluxes

CODE	CHEMICALS NAME	CAS	COLOR	SOFTENING POINT	ACID VALUE	SUBSTITUTE
<a href="#">GEHR100D</a>	Colorless Glyceryl Hydrogenated Rosinate	65997-13-9	○○○○○	●●○○○	○○○○○	Arakawa™ KE-311/ KE-100
<a href="#">GEHR100H</a>	Colorless Glyceryl Hydrogenated Rosinate	65997-13-9	○○○○○	●●○○○	○○○○○	Arakawa™ KE-311/ KE-100
<a href="#">PEHR100D</a>	Colorless Pentaerythritol Hydrogenated Rosinate	64365-17-9	○○○○○	●●○○○	○○○○○	Arakawa™ KE359
<a href="#">PEHR100E</a>	Colorless Pentaerythritol Hydrogenated Rosinate	64365-17-9	○○○○○	●●○○○	●○○○○	Arakawa™ KE359
<a href="#">105</a>	Hydrogenated Terpene Resin	106168-39-2	○○○○○	●●○○○	○○○○○	Clearon™ P105

## REMARK

- The columns of color, softening point, acid value are designed by the visualized relative index. Kindly contact us for TDS documents, or download TDS online via [Document Center](#).
- Arakawa™ is a trademark of Arakawa Chemical Industries, Ltd. Foral™ is a trademark of Eastman Chemical Company. Clearon™ is a trademark of Clearon Corporation.

# PRODUCT LIST



- Halogenated hydrocarbon solvents show detergency and rapid decontamination effect. But toxic and pollute the environment.
- Eco-friendly organic solvents have powerful dissolving power for soldering residues.

**Table 4. Organic Solvents List for Soldering Application**

CODE/PURITY	CHEMICALS NAME	CAS	APPLICATION
<a href="#">GER85</a>	Glyceryl Rosinate	8050-31-5	Forming Agent
<a href="#">G1004</a>	Glyceryl Rosinate	8050-31-5	Forming Agent
<a href="#">GMS40</a>	Glyceryl Monostearate	123-94-4	Forming Agent
<a href="#">GMS90</a>	Glyceryl Monostearate	123-94-4	Forming Agent
<a href="#">RA908</a>	Rosin Amine	61790-47-4	Surfactant
<a href="#">95%</a>	$\alpha$ -Pinene	80-56-8	Cosolvent
<a href="#">98%</a>	B-Pinene	127-91-3	Cosolvent
<a href="#">85%</a>	Turpentine	8006-64-2	Cosolvent

# BUYER GUIDE

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Although rosin esters and hydrogenated terpene resin can't remove the metal oxides effectively due to the low acid value, they still can bring benefits like increased viscosity, improved uniformity and gloss, and better thermal conductivity when added at a proper proportion.

Welcome to contact **FOREVEREST®** for more details.

**Table 5.1 Buyer Guide For Soldering Flux**

PRODUCT	DESCRIPTION	FEATURE	BENEFITS FOR FLUXES
AR120240	A derivative from additive reaction of gum rosin with acrylic acid.	<ul style="list-style-type: none"> <li>• Higher softening point</li> <li>• High acid value</li> <li>• Improved oxidation resistance</li> <li>• Improved thermal stability</li> <li>• Light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Higher activation temperature limit</li> <li>• Good rheological, wettability, thermal stability and oxidize resistance</li> <li>• Less flux residue</li> <li>• Significantly improved activity owing to the high acid value</li> </ul>
D459	A compound of dehydroabietic acid and dihydroabietic acid, the D459 is processed through catalytic reaction of gum rosin on proper temperature.	<ul style="list-style-type: none"> <li>• Improved oxidation resistance</li> <li>• Improved thermal stability</li> <li>• Lower acid value*not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Good rheological, wettability, thermal stability and oxidize resistance</li> <li>• Lower acid value may affect the chemical activity of fluxes in certain degree</li> </ul>
H106 H101 H103	Gum rosin that has been partially/fully hydrogenated via a catalytic process. It chiefly consists of different resin acids, especially abietic acid.	<ul style="list-style-type: none"> <li>• Good oxidation resistance</li> <li>• Good thermal stability</li> <li>• Light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Good rheological, wettability, thermal stability and oxidize resistance</li> <li>• Light color flux residue after soldering</li> </ul>
MR75	Made from gum rosin and maleic anhydride by compounding reacting.	<ul style="list-style-type: none"> <li>• High acid value</li> <li>• Improved oxidation resistance</li> <li>• Improved thermal stability</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Higher activation temperature limit</li> <li>• Good rheological, wettability, thermal stability and oxidize resistance</li> <li>• Less flux residue</li> <li>• Significantly improved activity owing to the high acid value</li> </ul>

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## Table 5.2 Buyer Guide For Soldering Flux

PRODUCT	DESCRIPTION	FEATURE	BENEFITS FOR FLUXES
DA125200	Modified Rosin	<ul style="list-style-type: none"> <li>• Good oxidation resistance</li> <li>• Good thermal stability</li> <li>• Higher softening point</li> <li>• Light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent rheological, wettability, thermal stability and oxidize resistance</li> <li>• Higher activation temperature limit</li> <li>• Less flux residue</li> <li>• Significantly improved activity owing to the high acid value</li> </ul>
FPR-95	Made from gum rosin by polymerization via catalyst which composed predominately of dimeric acids derived from rosin with lesser amounts of monomeric resin acids and neutral materials of rosin origin.	<ul style="list-style-type: none"> <li>• Higher softening point</li> <li>• Improved oxidation resistance</li> <li>• Improved thermal stability</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Good rheological, wettability, thermal stability and oxidize resistance</li> <li>• Higher activation temperature limit</li> </ul>
FPR-115			
FPR-140			

## Table 5.3 Buyer Guide For Soldering Flux

PRODUCT	DESCRIPTION	FEATURE	BENEFITS FOR FLUXES
R/X	Also called colophon, produced by steam-distilling fresh liquid pine resin to vaporize the volatile liquid terpene components. It chiefly consists of different resin acids, especially abietic acid.	<ul style="list-style-type: none"> <li>• Easily softened and oxidized</li> <li>• Poor thermal resistance</li> <li>• Tend to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• Base rosin for general use</li> <li>• Suitable chemistry for fluxes</li> </ul>
YPR/WW			

# BUYER GUIDE

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Table 5.4 Buyer Guide For Soldering Flux

PRODUCT	DESCRIPTION	FEATURE	BENEFITS FOR FLUXES
GEHR100D GEHR100H	A kind of super light color tackifying rosin resin, which is esterified from refined hydrogenated rosin and edible glycerol, and through series combined technologies units of catalytic hydrogenation.	<ul style="list-style-type: none"> <li>• Good oxidation resistance</li> <li>• Good thermal stability</li> <li>• High purity</li> <li>• Higher softening point</li> <li>• High tack</li> <li>• Very light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• As a tackifier to improve the rheological, stability and viscosity of flux paste</li> <li>• Good film-forming property</li> <li>• Good thermal conductivity</li> </ul>
PEHR100D PEHR100E	A kind of super light color tackifying polyols resin, which is esterified from refined gum rosin by pentaerythritol, and through series combined technologies units of catalytic hydrogenation.	<ul style="list-style-type: none"> <li>• Good oxidation resistance</li> <li>• Good thermal stability</li> <li>• High purity</li> <li>• Higher softening point</li> <li>• High tack</li> <li>• Very light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• As a tackifier to improve the rheological, stability and viscosity of flux paste</li> <li>• Good film-forming property</li> <li>• Good thermal conductivity</li> </ul>
105	Hydrogenated Terpene Resin	<ul style="list-style-type: none"> <li>• Good oxidation resistance</li> <li>• Good thermal stability</li> <li>• High purity</li> <li>• Higher softening point</li> <li>• High tack</li> <li>• Very light color</li> <li>• Not easy to crystallize</li> </ul>	<ul style="list-style-type: none"> <li>• As a tackifier to improve the rheological, stability and viscosity of flux paste</li> <li>• Good film-forming property</li> <li>• Good thermal conductivity</li> </ul>

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Table 5.5 Buyer Guide For Soldering Flux

APPLICATION	DESCRIPTION
Forming Agent	<ul style="list-style-type: none"><li>Forming agent is the role of the flux solvent is volatilized after the active agent carrying a uniform film on the printed board, the ability to obtain better on the tin to prevent the tin solder splash and uneven.</li></ul>
Surfactant	<ul style="list-style-type: none"><li>To improve the flux performance to meet the different needs of different uses, opt-inhibitor, foaming agent, brightener or matting agent.</li></ul>
Cosolvent	<ul style="list-style-type: none"><li>The cosolvent is used for improving the solubility of surfactants and forming agents. Reduce deposition, and increases the wettability of the pastes.</li></ul>

More Details...

- [Products List](#)
  - [Rosin Derivatives](#)
  - [Polyterpene Resins](#)
- [Solution Center](#)
  - [Tackifier Center](#)
  - [Electronic Industry](#)

**Foreverest Resources Ltd.** is a family-owned company, which specializes in pine chemicals and provides reliable and comprehensive solutions for pre-sale & after-sale services. With 30 years of history in R&D of forest chemicals products in China, we focus on supplying the substitutes of natural products. Our products include modified resins, terpene based derivatives, flavour & fragrance ingredients, and other biobased chemicals.

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