

PV Assembly Solutions

ALPHA® & Kester® Solder Materials Specifically Designed For PV Applications

Engineered for Reliability and High Throughput Production

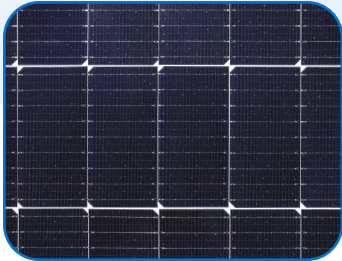
Offering a complete range of soldering materials for PV assembly, including fluxes, cleaners, solder pastes, bars, preforms, and cored wires, developed to meet the specific demands of photovoltaic applications and reduce production challenges across key PV market segments.

PV Module Assembly

Liquid Flux
Cleaner
Cored Wire
Solder Paste

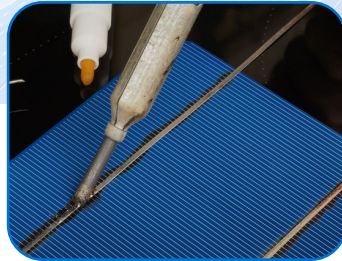
PV Ribbon Assembly

Tinning Flux
Solder Bar



Wire/Busbar Interconnection

ALPHA Cored Wire
ALPHA Solder Paste
ALPHA/Kester Flux



Rework

ALPHA/Kester Flux
ALPHA Cored Wire



PV Ribbon Tinning

ALPHA Flux
ALPHA Alloys



Junction Box Assembly

ALPHA Cored Wire
ALPHA Solder Paste
ALPHA Preforms

Key Features

- **Superior Wetting Performance** – Supports high yields and maximizes throughput
- **Reliable Interconnects** - Excellent solderability with long-term joint integrity
- **Broad Process Compatibility** – Enables both SnPb and lead-free soldering processes
- **Optimized Total Cost of Ownership** – Enhances productivity while reducing overall process costs
- **Low-Residue Flux Formulation** – Minimal, tack-free residues reduce maintenance and downtime

Higher Yields



Long Term Reliability



Long Term Sustainability



Low Machine Residue



MacDermid Alpha
ELECTRONICS SOLUTIONS



PV Assembly Solutions

ALPHA® & Kester® Solder Materials - Best-in-Class Reliability and High Throughput

Ribbon Tinning

APPLICATION	PRODUCT TYPE	PRODUCT	FEATURE
Dip Tinning	Liquid Flux	ALPHA® PV-41C	VOC-Free, specially designed for PV ribbon/wire tinning application
		ALPHA® PV-21	Alcohol based, low solid
Dip Tinning Fluxless Tinning	Solder Alloy	Tin-Lead Based Alloys With Melting Point ~180 °C	Available in ALPHA® Sn60Pb40 Plus, Sn60Pb40, Sn62Pb36Ag2
		ALPHA® EcoSol Lead-Free Alloys with Low Melting Point ~180 °C	Over 30% lower price compared to most Pb-free alloy
		Lead Free Alloys With Point ~220 °C	Available in Sn96.5Ag3.5, SAC305, ALPHA® SACX Plus 0107/0307/0807, ALPHA® SnCx® Plus 07

Module Assembly

APPLICATION	PRODUCT TYPE	PRODUCT	FEATURE
MBB (Wire Ribbon) Interconnection	Liquid Flux	ALPHA® SF828-MBB	Fast wetting and less residue
Bus Ribbon Rework		Kester® 952-S Kester® SF800-LR ALPHA® PV-71	Halogen-free and low solid
Shingling and xBC Interconnection Structured Ribbon Junction Box	Solder Paste	ALPHA® PV-100 for SnPb ALPHA® PV-300 for Pb-Free ALPHA® PV-500 for Low Temp	Available in multiple alloy types in T3/T4 powder form, available in both syringe and jar
Junction Box Wire/Busbar Interconnection Rework	Cored Wire	ALPHA® Telecore HF-850 ALPHA® Telecore XL-825	Available in various alloys for both robotic or manual soldering
Junction Box	Solder Preform	ALPHA® PV-Ready ExactAlloy™	Back side solar cell assembly
Equipment Maintenance Flux residue	Cleaner	ALPHA® 2100	Efficient aqueous cleaner for residue removal
		ALPHA® SM-110	Fast effective cleaning of residues from mechanical parts
Solar Module	Thinner	ALPHA® 425	Thinner for flux

