

ZTERIAL 100B/200F/300L/400C

PHOTOVOLTAIC HJT METALLIZATION

HIGH CELL EFFICIENCY, PEEL STRENGTH, LOW COST PASTES

ZTERIAL HJT Series – Advanced Photovoltaic Metallization Solutions

The photovoltaic industry is rapidly expanding, and Heterojunction (HJT) solar cells are at the forefront of this growth. Renowned as the next-generation technology, HJT cells represent a major breakthrough in power generation—delivering the highest mass-production efficiency among current solar technologies.

As a pioneer in metallization pastes for HJT solar cells, ZTERIAL has developed a comprehensive line of advanced pastes, including:

- **ZTERIAL 100B** for busbars
- **ZTERIAL 200F** for fine lines
- **ZTERIAL 300L** for low-temperature applications
- **ZTERIAL 400C** for silver-coated copper paste

These pastes offer excellent printability, enhanced cell efficiency, and reduced silver usage, made possible through molecular nanotechnology—ultimately lowering overall HJT manufacturing costs compared to PERC.

PRODUCT BENEFITS

- Exceptional print quality for both finger lines and busbars.
- Up to 0.5% improvement in HJT solar cell efficiency.
- Low contact resistivity.
- Excellent solderability and strong solder adhesion
- Lowers silver paste consumption by up to 50% for pure silver pastes without compromising cell efficiency

PROCESSING OVERVIEW

Application

Screen Printing

Printing Speed

250–400 mm/s

TYPICAL PHYSICAL PROPERTIES

	Properties
Solids Content	90±5%
Viscosity (Brookfield HBT, SC4-14/6R, utility cup @10 rpm, 25°C)	250±50 Kcps
Thinner	T1286
Shelf Life (<0°C~5°C)	2 months

Screen Mesh Options

325, 360, 400, 430, or 500 stainless steel

Emulsion Thickness

15–20 µm

Line Resolution

15–50 µm (based on screen design)

Adhesion

>2N/mm

Drying Conditions

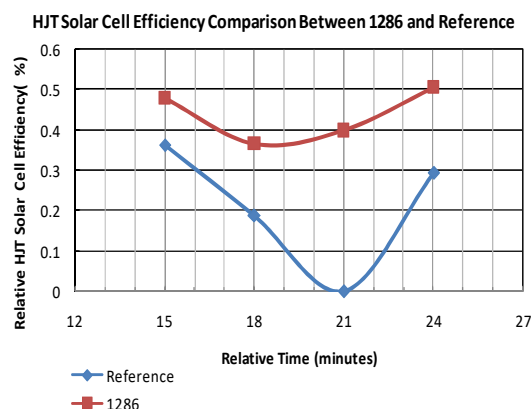
IR belt dryer at 150–300°C for 1 minute

(Adjustable per industry practices and dryer type)

Soldering

Compatible with industry standard material and condition

Ribbon: Compatible with Pb-contained and Pb-free solder material, such as 62Sn/36Pb/2Ag, 96.5Sn/3.5Ag, Sn/Bi



PASTE PREPARATION

The paste should be thoroughly mixed before use. This is best achieved by slow, gentle hand-stirring with a clean burr-free spatula (flexible plastic) for 5 minutes. Jar rolling is not recommended. Care should be taken to avoid air entrapment.

PRINTING GUIDELINES

Ensure printing is conducted in a clean, well-ventilated environment. All pastes should be at ambient temperature before starting.

CURING CONDITIONS

Cure at 150°C–200°C for 5 to 26 minutes, depending on process parameters.



THINNER USE

The ZTERIAL paste formulas are optimized for screen printing and typically do not require thinning. If viscosity adjustment is necessary, only use the ZTERIAL-recommended thinner (T1286). Excessive or non-recommended thinners may adversely affect rheology and print performance.

STORAGE INSTRUCTIONS

Store containers at –50°C, tightly sealed. Avoid storage above 30°C, as elevated temperatures can irreversibly alter material properties. Shelf life in unopened containers is 2 months from shipment. Stir well before use to re-disperse any settled solids.

SAFETY AND HANDLING

For health and safety information, please refer to the product's Material Safety Data Sheet (MSDS).



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