

Ingot/Boule - Wafering & Slicing Precision Surface Cleaning Solutions for Photovoltaic Wafers



Advantages of UDM Systems® Solar (PV) Products

UDM Systems® has revolutionized the solar industry by its unique solar products. Our water-based lubricant and cleaners are perfect for ingot and boule wafering. These innovative products utilize thinner wire, creating thinner wafers and higher yield. It's low maintenance and worry-free.

Enhance Solar-wafer Processing

UDM Systems®, LLC solar products are designed to give you optimal performance. Using our solar products can extend diamond wire life and improve wafer reliability, which minimizes wafer breakage. Our solar products have outstanding wetting properties and excellent rinse ability. After wafering, the wafer surface is 10 times cleaner and it only requires minimal cleaning.

UDM Systems®, pride ourselves and our products on being completely Eco-friendly. They are water-based, non-hazardous, biodegradable and easily disposed of. They eliminate hazardous waste material and are non-caustic and non-acidic.

ECO - FRIENDLY



Solar Products

UDM SYSTEMS® AKLC-SERIES FLUIDS & CLEANERS IMPROVES PRODUCT YIELD AND SAVES COST

UDM Systems® AKLC-Series is an advanced material developed to revolutionize the wafering process. It offers excellent heat transfer, extends diamond wire life, improves wafer reliability (minimizes wafer breakage) and is extremely environmentally friendly. It enables the use of thinner wire which leads to slicing thinner wafers with higher yields.

AKLC400-SPV Cutting Fluid for Silicon Ingot and Sapphire Wafering/Bricking/Squaring/Cropping

- AKLC400 is an advanced material developed to revolutionize the wafering process
- AKLC400 is a 100% water based lubricant additive in DI water for ingot and boule wafering
- Recommended dilution rate is 1:500~1000.--Very low consumption rate
- Surface Tension Reduction to 22~25 dynes/cm.
- Thinner wire, thinner wafer and higher yield
- Excellent Heat Transfer
- Extends Diamond wire life
- Improves Wafer reliability -- minimized wafer breakage
- Wafer surface cleanliness after wafering -- 10x much cleaner, requires only minimal cleaning.

AKLC400-AF Coolant/Lubricant Antifoam

- AKLC400-AF is an Antifoam additive for AKLC400-SPV Slicing fluid. AKLC400-AF is biodegradable, non-corrosive aqueous solution and completely water soluble.
- Mixing ratio of slicing coolant-lubricant with AKLC400-AF is between 1: 0.5 and 1:2.

Environmental Benefits and Cost:

- Elimination of Slurry management (No PEG & Silicon Carbide (SiC) hazardous waste management)
- Non-hazardous, Biodegradable and environmentally friendly



UDM Systems® Solar Products

UDM AKLC-Series products are designed as 100% water based lubricant additive in DI water for ingot and boule wafering in today's solar industry.

Using all eco-friendly components in our formulations not only provides a cost savings, but also helps to keep the environment clean.

Our AKLC series products are designed for low consumption rates while providing for higher yields in Solar production applications.



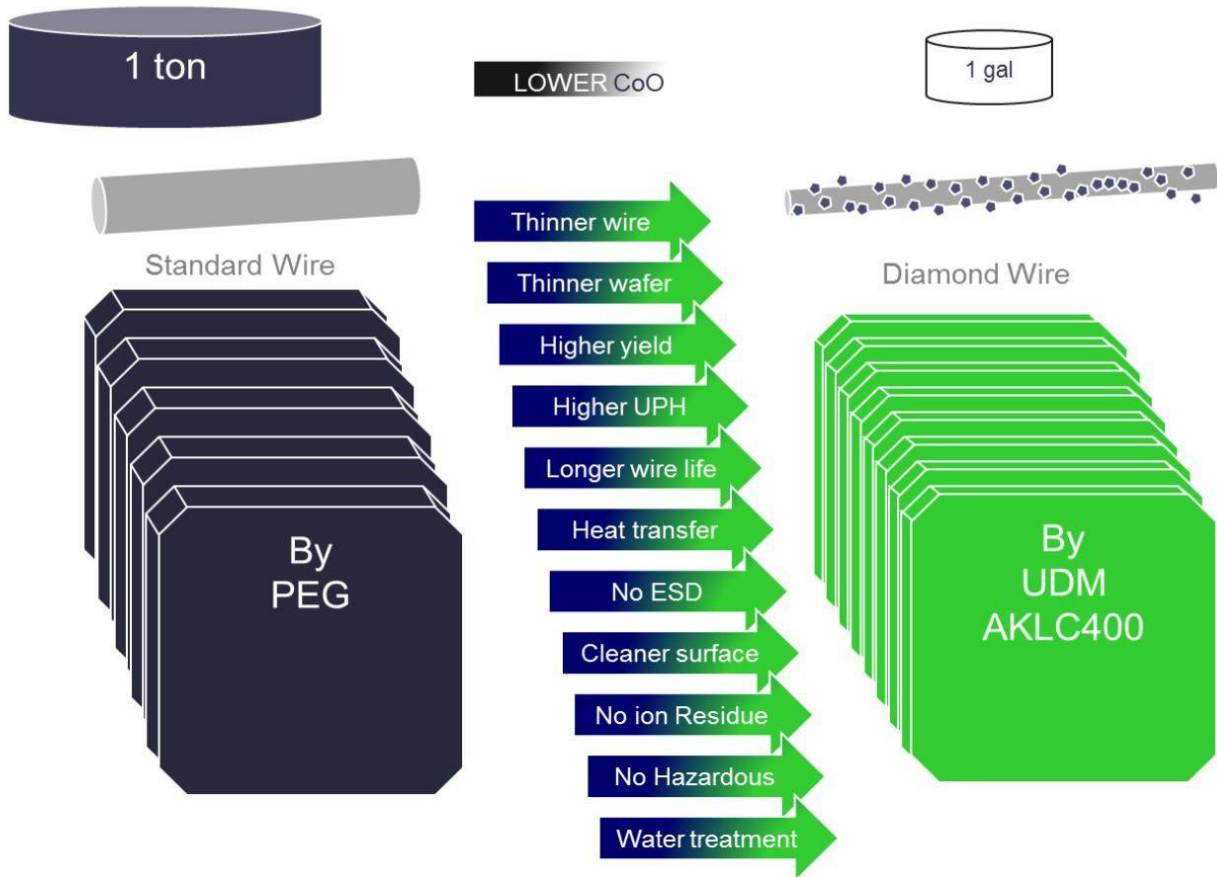
Solar Cell

UDM AKLC400 vs PEG

	UDM AKLC400	PEG
Type	Water Based	PEG
Consumption/ Ingot	0.1 ~ 0.2%	100%
Cost of Ownership	LOW	HIGH
Handling	Non-Hazardous	Hazardous
Water Treatment	Biodegradable, easily treated and disposed	Costly treated hazardous material
Surface clean Process	Very Clean	Heavily Contaminated
Package	1 ~ 5 gal bottle	1 ton IBC tank

Advantages of UDM Systems® AKLC-Series over PEG

PEG Vs. AKLC400 series on Ingot Slicing





UDM Systems® AKLC-300 Series Detergents

AKLC300 is an excellent wetting and cleaning product with exceptional rinsing properties.

AKLC300 reduces water surface tension and cleans out SiC (Silicon carbide) dust and other contaminants on wafer surface.

It also eliminates Copper and Iron on wafer surfaces after the wafering and de-gluing process.

Like all our products, it is designed to have a low consumption rate and is environmentally friendly.



Water Based Environmentally safe products

AKLC300 Detergent / De-Glue Concentrate for Photovoltaic Wafers

- AKLC300-Detergent is a biodegradable water-based, non-caustic and non-acidic material
- DI /RO water: Detergent dilution ratio – 10:1 to 50 :1
- PV wafer Cleaning at temperatures of 45°C – 70°C
- Excellent wetting, cleaning and rinsing properties
- Water surface tension reducer
- Completely cleans out SiC (silicon carbide) dust and other contaminants on wafer surfaces
- Cleans and eliminates Cu (Copper) and Fe (Iron) on wafer surfaces after wafering and de-gluing process.
- Biodegradable, non-hazardous and eco-friendly.
- Biochemical Oxygen Demand (BOD) < 12.0 mg/L (BOD less than 12.0 mg/L)
- Chemical Oxygen Demand (COD) < 96.0 mg/L (COD less than 96.0 mg/L)



UDM Systems®, LLC is a global chemical manufacturing company based in the United States. We offer high-performance products that are suitable for many industries such as Semiconductor, Solar, Optoelectronics, Biomedical, LED, Precision Glass & Optics, and much more.

It's called environmentally friendly for a reason

We pride ourselves and our products on being completely eco-friendly. All UDM System Products are water-based, non-hazardous, biodegradable and easily disposable.

UDM Systems®, LLC a global chemical manufacturing company

Sales and Application Offices

Singapore

China

South Korea

Philippines

Malaysia

Japan

Thailand

Taiwan

Europe

United States (Headquarters)

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