



- Reduces Front and Back Side Chip Out
- Reduces Micro-cracks
- Increases Throughput
- Extends Blade Life

# KerfAid™ Application Note

## Increasing Cut Quality with KerfAid™

### Background

Saw dicing creates a dangerous environment for the delicate materials that make up semiconductor wafers. KerfAid™ is a saw-dicing additive that reduces the negative effects of saw-dicing operations. When KerfAid™ is mixed with the cutting water a number of benefits arise and an important benefit is a dramatic increase in cut quality.

### How to Use KerfAid™

KerfAid™ is utilized by injecting and mixing it directly into the cutting water. KerfAid™ can be used at a variety of dilution (mixing) ratios to meet the different demands of a wide variety of applications. Dynatex International recommends using their DXL injection systems for best results.

### Improving Front and Back Side Chip out

The ability of KerfAid™ to reduce front and backside chipping allows a saw dicing process to handle more material in a shorter amount of time. In the example to the right, a customer was able to increase their saw-dicing speed by adding KerfAid™. Front side chip-out was reduced from chipping to the ground ring to chipping barely reaching out of the saw-dicing lane. Below is another case study demonstrating KerfAid reducing backside chipping from an extreme of 32.4 microns to no visible chipping whatsoever.



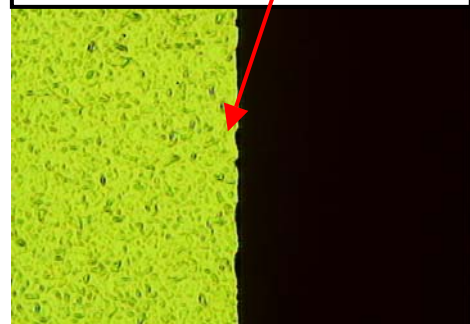
Front Side No KerfAid:  
34.7  $\mu$ m Chip Out



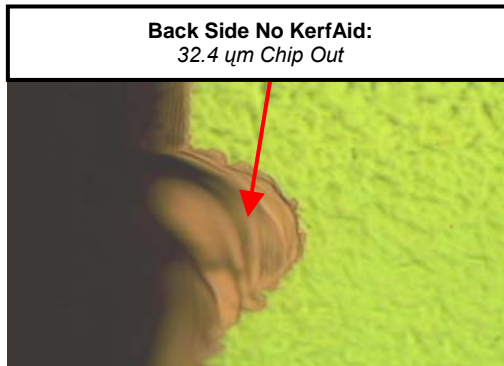
Front Side With KerfAid:  
11.7  $\mu$ m Chip Out



Back Side With KerfAid:  
No Chip Out



Back Side No KerfAid:  
32.4  $\mu$ m Chip Out



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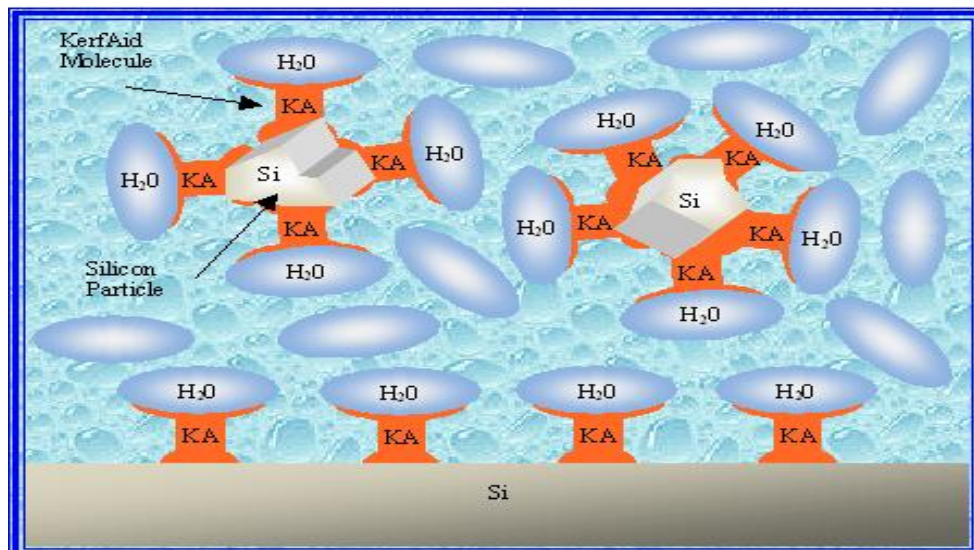
## How it works

### Creates Laminar Flow

KerfAid™ is engineered to lower the “Reynolds Number” in order to increase the viscosity of the cutting water. Lowering the Reynolds number has important benefit of making the cutting water undergo the important transition from turbulent flow to laminar flow.

### Chemistry with a Purpose

The KerfAid™ molecule is designed with two different ends. One end of the KerfAid™ molecule is hydrophilic which means it bonds to water molecules. The other end is hydrophobic which bonds to the Si particulates in the water. This configuration of the molecule ensures that particulates are washed away from the wafer surface!



### Typical Physical Properties

Specific Gravity @ 25°C	1.01 - 1.05
Solubility @25°C in Water, % by weight	100
Viscosity @20°C, cSt	11.54
Flash Point, °C	N/A
Vapor Pressure @25°C, mmHg	23.8
Volatiles (EPA Method 24), wt %	Negligible
Surface Tension@25°C, mN/m	31-36
Color	Pink
Odor	Mild
Conductivity, μS/cm	120
Ph	7 - 9.5

### Safety

Because KerfAid has a low order of toxicity, it does not require special handling. Always use good industrial hygiene and safety practices. See MSDS for complete safety, handling, storage and disposal information.

### Storage

KerfAid should be stored away from direct sunlight. Proper storage temperatures range from 5°C to 32°C. Do not store under freezing conditions. KerfAid has a shelf life of 2 years.

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