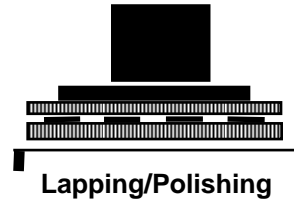


## VECTOR HTS-1.4-EU

### *Lapping/Polishing Slurry Additive for Suspending Non-Treated Abrasive*



#### Description

**VECTOR HTS-1.4-EU** evenly disperses and suspends a variety of *non-suspension-treated* abrasives, including Aluminum Oxide, Zirconium Oxide, along with Silicon Carbide, Boron Carbide, Synthetic and Natural Diamond and Garnet. Because of its superior suspension characteristics, VECTOR HTS-1.4-EU can reduce the amount of abrasive grain needed by up to 50%, while providing equal and often greater stock removal rates.

#### Benefits

- ⇒ Biodegradable
- ⇒ Increased removal rate
- ⇒ Improved geometry
- ⇒ More consistent results
- ⇒ No scratching
- ⇒ Reduced abrasive usage
- ⇒ Less sub-surface damage
- ⇒ Easier post-lap cleaning

#### Directions

VECTOR HTS-1.4-EU should be mixed with deionized water and abrasive using the following slurry formula: 77-82% water, 15-18% abrasive, 3-5% VECTOR HTS-1.4-EU. The concentration of the abrasive is dependent on the gritsize used, i.e. a coarse psd requires a higher concentration than a finer psd.

Use an agitator with a marine type propeller and a motor capable of app. 1750 rpm. Use a low shear dispense pump for feeding the mixed slurry onto the lap.

Disperse the abrasive with DI water for 20-30 min., at an rpm needed to get a vortex.  
Add HTS-1.4-EU and mix for app. 30 min. depending upon abrasive surface chemistry.

**A vortex should be formed at the surface of the slurry during the entire cycle of both mixing steps.**

Turn the mixer off, or to a maximum of app. 50 rpm.

#### Additional Information

VECTOR Products are available in 5-gallon pails and 55-gallon drums, F.O.B. Bethel, Connecticut, and also include grinding fluids, sawing fluids, rinse/wet storage additives and ultrasonic/megasonic detergents. Material Safety Data Sheets available upon request.

**VECTOR HTS-1.4-EU - Directions for Mixing and Application**

**Mixing & Pumping equipment, like NIBAG Mixing Unit**

1. Nalgene or stainless steel mixing tank
2. Mixer/Agitator with variable speed control, stainless steel shaft fitted with a marine type mixing propeller (plastic) with a dia of app. 1/3 - 1/4 of the dia of the mixing tank.
3. Peristaltic pump or other low shear pump (diaphragm or progressive cavity), capable of pumping up to 2000 ml per minute, use neoprene wall tubing.

**Slurry Recipe by weight, depending on the grit size of the abrasive**

- ⇒ 77-82% DI water
- ⇒ app. 15-18% Abrasive; non-treated, water classified and washed, containing low surface chemistry, yields the most stable slurry
- ⇒ app. 3-5 % VECTOR HTS-1.4-EU (percentage depends on quality of abrasive)

**or to make 100 l suspension, based on a Al<sub>2</sub>O<sub>3</sub> concentration of app. 220 g/l:**

- ⇒ 77 kg DI water
- ⇒ 18 kg Abrasive
- ⇒ 5 kg HTS-1.4-EU

**or to make 100 l suspension, based on a Al<sub>2</sub>O<sub>3</sub> concentration of app. 150 g/l:**

- ⇒ 83 kg DI water
- ⇒ 13 kg Abrasive
- ⇒ 4 kg HTS-1.4-EU

**Note:** *this is just a general guideline. Process has to be adjusted accordingly.*

**Mixing Procedure**

- ⇒ Add deionized water to the mixing tank and turn on the mixer to app. 750 - 1750 rpm, but the rpm depends on the dimension of the tank and type of propeller used.
- ⇒ Add abrasive slowly to the water and allow to mix for app. 20-30 minutes to ensure proper dispersion and wetting.
- ⇒ Add VECTOR HTS-1.4-EU to the dispersed slurry and allow to mix for app. 20-30 min.

**There should be a vortex formed at the surface of the slurry during the entire cycle of both mixing steps.**

- ⇒ When the mixing cycle is completed either shut off agitation or leave the mixer at low rpm, like app. 50 rpm.

**Slurry Application**

Pre dip wafer into a tank containing mixed slurry or 3% HTS-1.4-EU solution, by weight before placing them on the lapping plate. This will insure an even coating of slurry to cushion the wafer during start-up.

Starting flow rates (depending on the dia of the lapping plate as well):

- app. 550 ml/min.; for serrated = **grooved** lapping plates with a dia of app. 1200 mm
- app. 100 ml/min.; for **flat** lapping plates with a dia of app. 1000 mm

**note:** the mixing procedure as well as the possible results will vary if other mixing technologies are used and/or if other abrasives and different parameters are used.