

# NORaX Engineered Abrasives

## Basics



  
SAINT-GOBAIN  

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**ABRASIVES**

# What is NORaX?

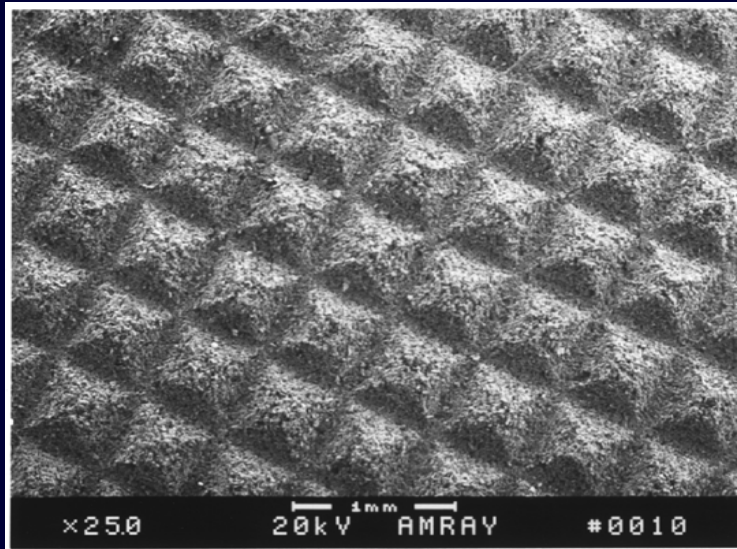
**New Technology**

**An Engineered Abrasive**

**Specifically targeting fine polishing**

**Metal Applications**

# Components of an Engineered Abrasive

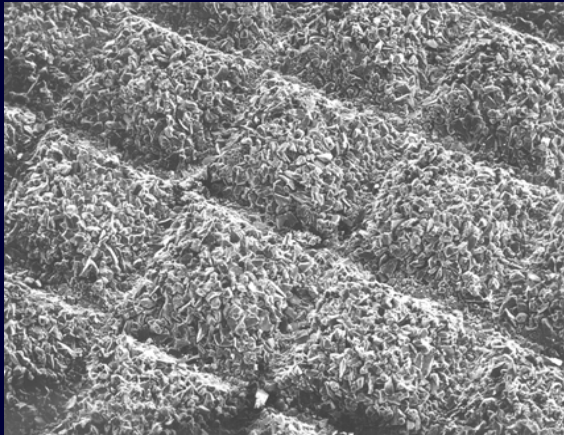


Surface is completely covered with abrasive and grinding aid

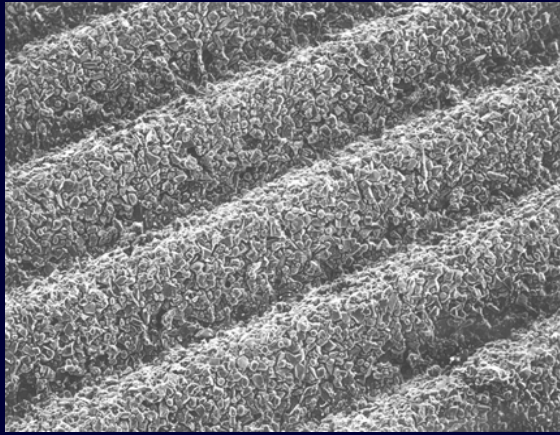
(Pyramidal type pattern)

# Engineered Abrasive Main Patterns

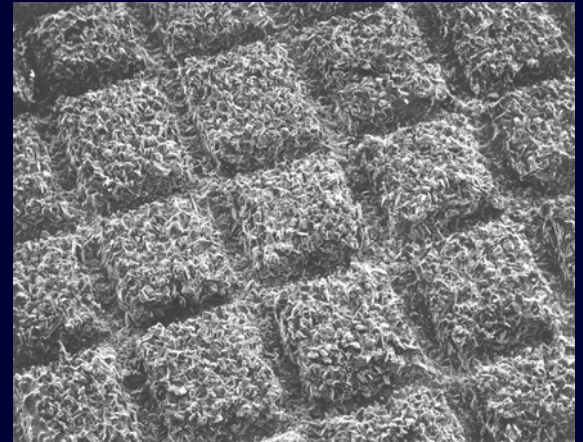
**3 Pressure bearing patterns to choose from**



Pyramid U254



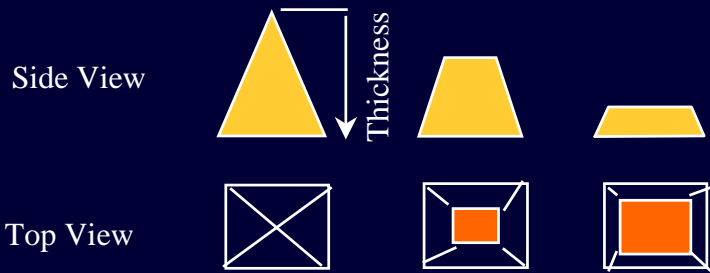
Diagonal U264



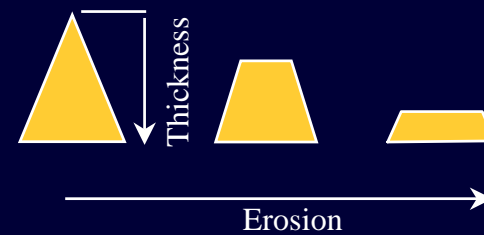
Quad U234

# Engineered Abrasives - Differences from Current C/A

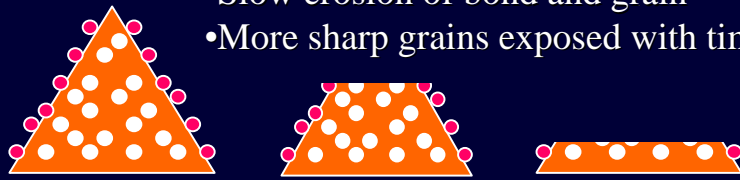
- Engineered Abrasives erode during grinding :



Pyramids



diagonal



- Slow erosion of bond and grain
- More sharp grains exposed with time

Engineered Abrasives

- Grain erosion only
- Grain pullout leaves fewer exposed sharp grain



Conventional C/A

# Engineered Abrasives - Differences from Current C/A

## Engineered vs. Aggregate vs. Conventional

CONVENTIONAL (Mono-layer)



AGGREGATES -(Multi-layer but poor contact area control)



**ENGINEERED ABRASIVES** (Multi-layer with contact area control which can be tailored to application)



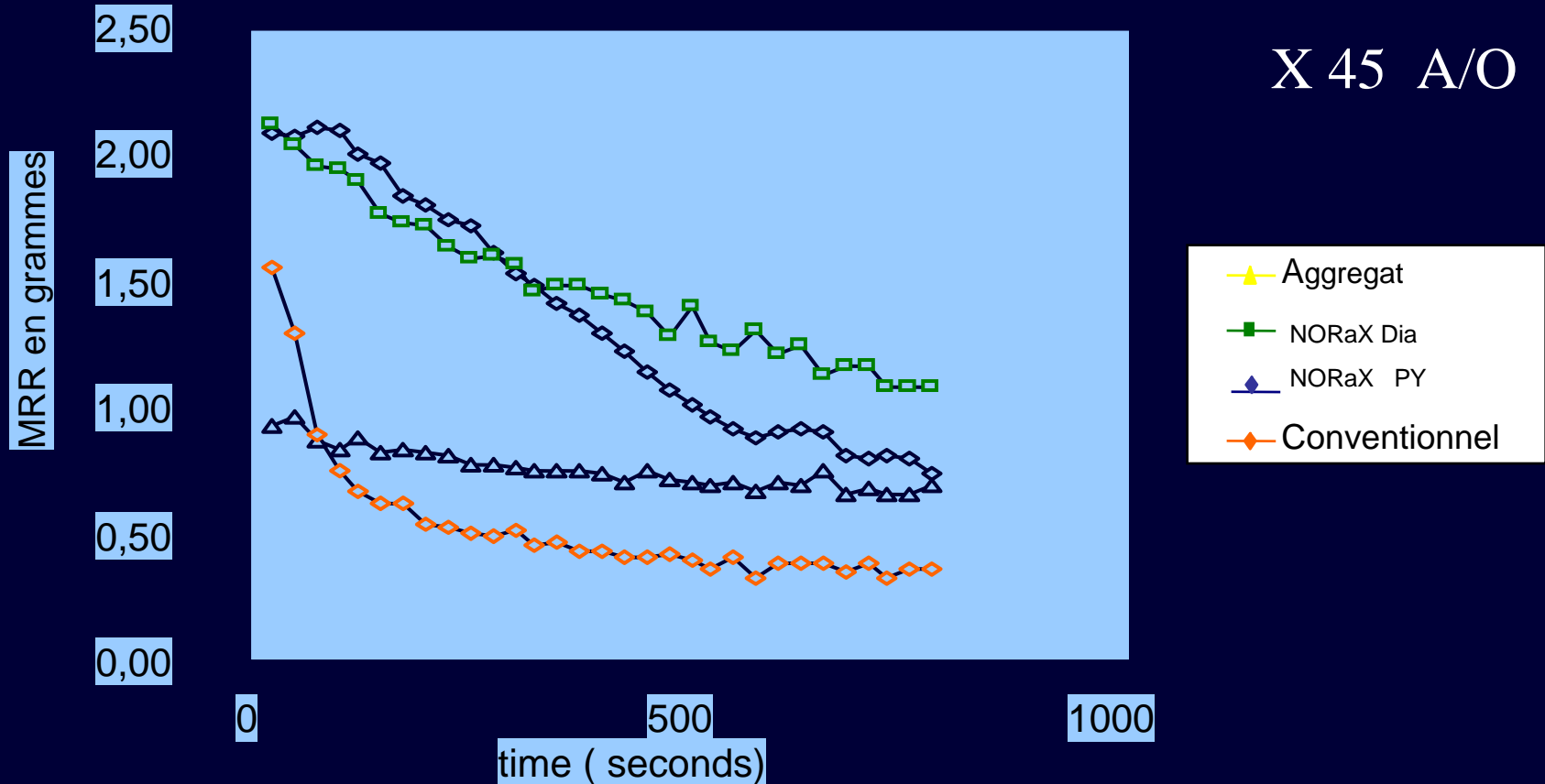
# Engineered Abrasives - Advantages

- Increase in cut rate over conventional abrasives
  - Ability to remove conventional steps
  - No sacrifice in surface finish
- Prolonged Life
- Lower grinding temperatures
- Less pressure required for grinding

# NORaX vs conventional : cut rate

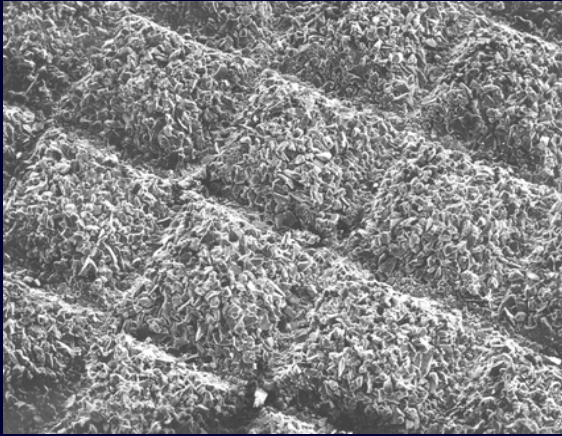
## Comparative Cut rate evolution in time

( on stainless steel- 23m/s - 1,1 kg/cm<sup>2</sup>)

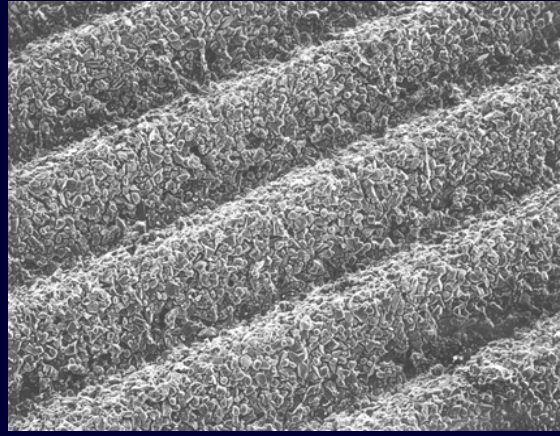




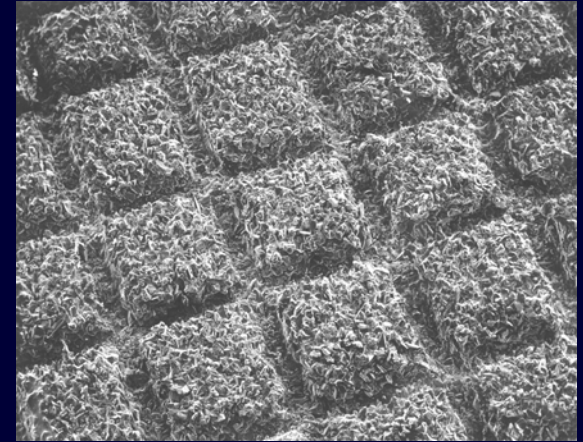
# Engineered Abrasive Basic Pattern Selection



Pyramid U254



Diagonal U264



Quad U234

**Pyramid (Low bearing Area)** - Generally better for low-pressure ( $< 0,8 \text{ kg/cm}^2$ ) flexible applications

**Diagonal (Middle bearing Area)** - Most versatile pattern with excellent surface finish ( $0,8 - 1,3 \text{ kg/cm}^2$ )

**Quad (High bearing Area)** - More consistent cut with excellent surface finish ( $> 1,3 \text{ kg/cm}^2$ )

# Backings

- X -Polyester** - Firm to Semi-Flexible depending on severity of flexing operation.  
Waterproof. Excellent for higher pressure and high speed applications.
- X -Cotton** - Semi-Flexible to Flexible depending on severity of flexing operation.  
Dry grinding only. Good conformance on a broad range of applications.  
Lower cost.
- J -Cotton** - Flexible to Very Flexible depending on severity of flexing operation.  
Dry grinding only. Good conformance on a broad range of applications.  
Lowest cost

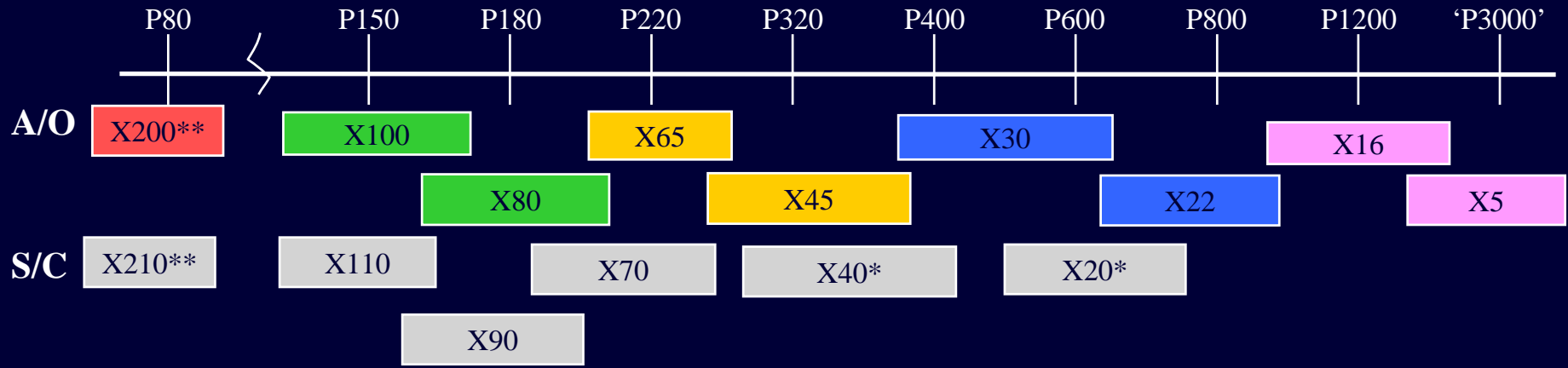
# Abrasive Availability

**Aluminum Oxide : X200 - X5**

**Silicon Carbide : X210 - X20**

# Engineered Abrasives - Grit Sequence

## FEPA Grading



\* Not currently available – Experimental only

\*\* Only available in waterproof design

# Engineered Abrasives Surface Roughness

## Average Finish (Ra)



# Product Code System

**Example: U264**



First Character: U denotes “UV” curable products

Second Character: grain

2 = Aluminum Oxide

3 = Waterproof Aluminum Oxide

4 = Silicon Carbide

Third Character: pattern

6 = Tri-Helical

5 = Pyramid Cell

3 = Quad Cell

4 = Lite TH

Fourth Character: backing type

6 = X polyester

4 = X cotton

2 = J cotton

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