

MIDWEST INDUSTRIAL SUPPLY, INC.

# Dust Control & Soil Stabilization Chemicals

*Industry Perspective & Guidelines*

Joint Aerial Port of Debarkation  
(APOD) Workshop



# Classes of Chemicals

An aerial photograph of an industrial facility, likely a refinery or chemical plant. In the center, a large white commercial airplane is parked on the tarmac. The facility includes several large storage tanks, buildings, and piping. The background shows a hazy sky and distant hills.

- **Polymers Emulsions**

- **Chlorides**

- **Synthetic Fluids**

- **Asphalt Emulsions**

- **Others**

- **Lignins**

- **Tall oils**

- **Soy Bean oil**

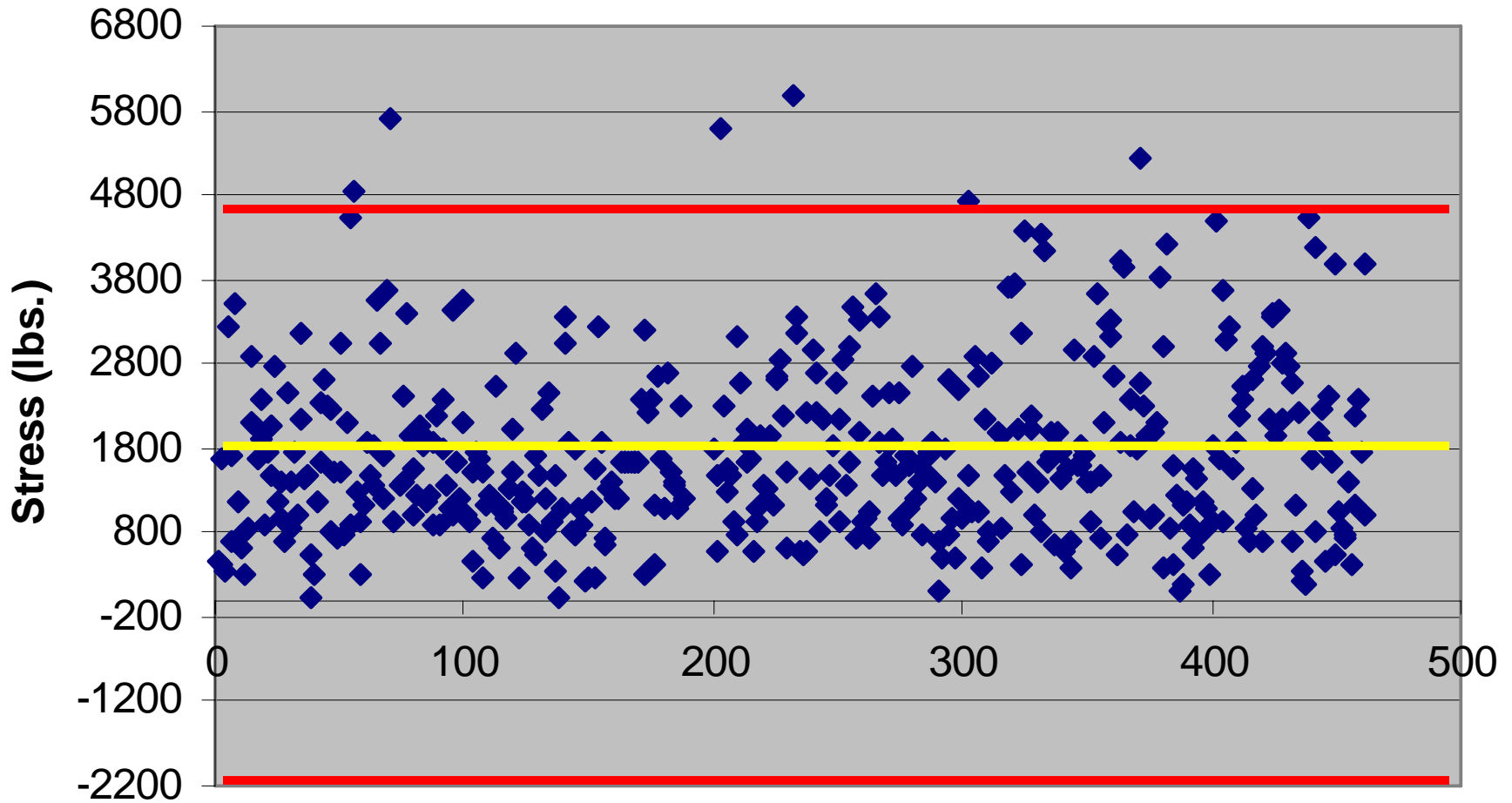
- **Tri-Pam**

- **Sugar Starches**

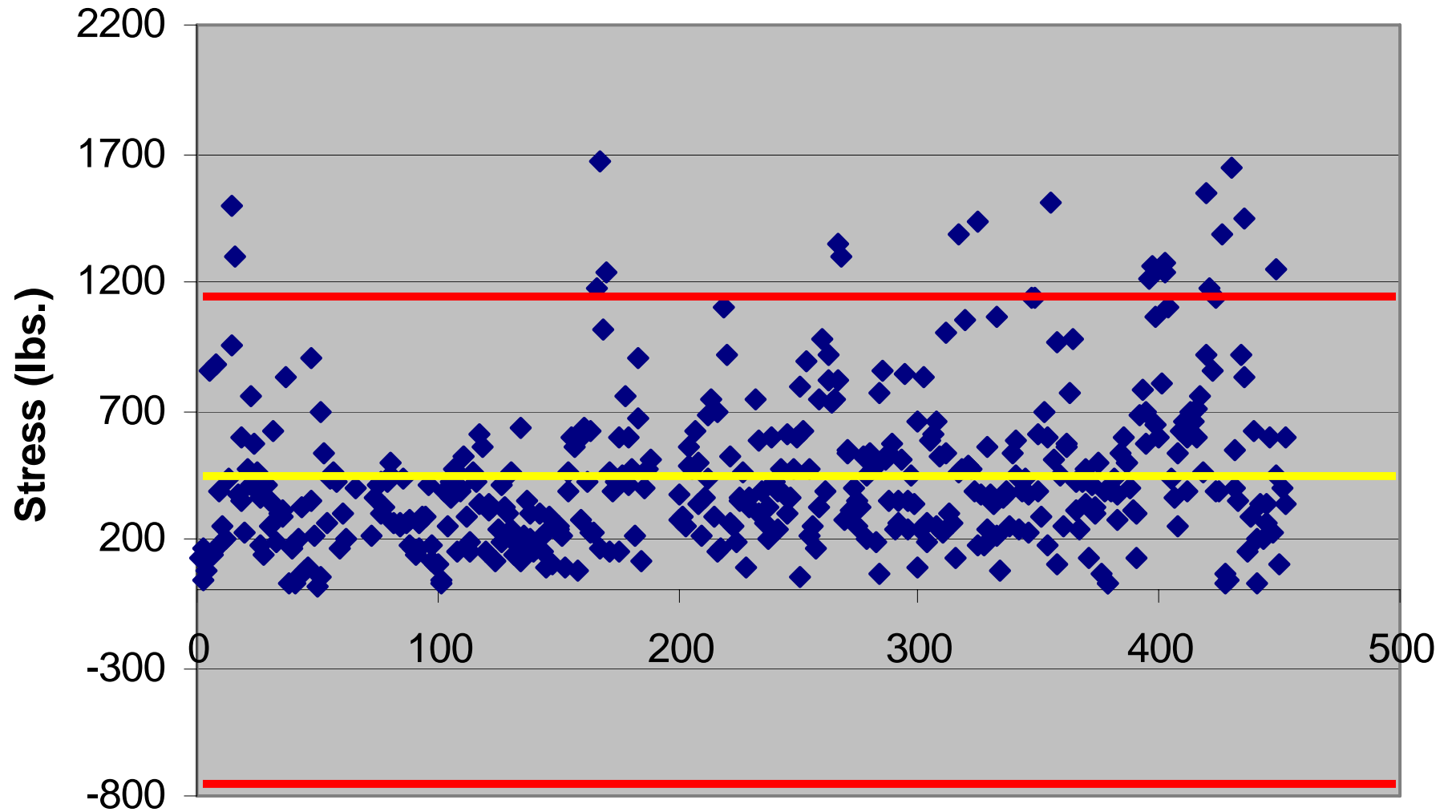
# POLYMER EMULSIONS

- Strong long chained polymer bonds
- Emulsions
  - stability
  - bacteria
- Origin – not intended for dust control or soil stabilization
- Not all polymers are the same
  - Thousands of varieties of polymers

# Polymer Emulsion Raw Material Dry Strength



# Polymer Emulsion Raw Material Wet Strength



# CHLORIDES

- Calcium Chloride & Magnesium Chloride
- Humectants – draw moisture from the air
- Highly corrosive
- Inexpensive

# SYNTHETIC FLUIDS

- Mechanisms
  - Ballasting
  - Densification
  - Binding
- No water required
- 100% active ingredients
- Higher unit cost



**Chemical Dust Control & Soil Stabilization Selection Rating  
for  
Expeditionary Military Applications**

		Chemical Rating					
Chemical Rating Factor	Factor Weight	Polymer Emulsions	Chlorides	Synthetic Fluids	Tri-Pam	Tall oil	Sugar Starches
Ability to create expedient surfaces	0.15	7.00	6.00	9.00	2.00	6.00	5.00
Dust Control Performance in hot & dry climate	0.15	7.00	2.00	8.00	4.00	5.00	3.00
Soil Stabilization in SM soils	0.15	9.00	3.00	6.00	1.00	4.00	3.00
Logistical footprint / quantity / weight	0.10	5.00	3.00	8.00	10.00	5.00	5.00
Ease of use	0.10	5.00	5.00	9.00	1.00	5.00	5.00
Application Equipment maintenance / cleaning	0.10	3.00	4.00	8.00	5.00	3.00	5.00
Storage Stability / Shelf-life	0.10	3.00	8.00	10.00	7.00	2.00	8.00
Environment Health & Safety	0.05	8.00	5.00	9.00	8.00	7.00	9.00
Cost	0.10	5.00	9.00	4.00	6.00	8.00	8.00
Sum of weights	1.00						
Weighted Industry Attractiveness Rating		6.28	4.44	7.56	4.06	5.22	4.89

**Rating Scale: 1 = Very unattractive; 5 = Average; 10 = Very attractive**

# TAKEAWAYS

- Utilize ERDC / JRAC & Marine Corps Systems Command for selection
  - Testing is best done in this field to-date
  - Acting as gate-keepers
- Use a rating scheme to help with product selection
- Need material specification development & QPL
- Contact me for any additional help



## POINT OF CONTACT:

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