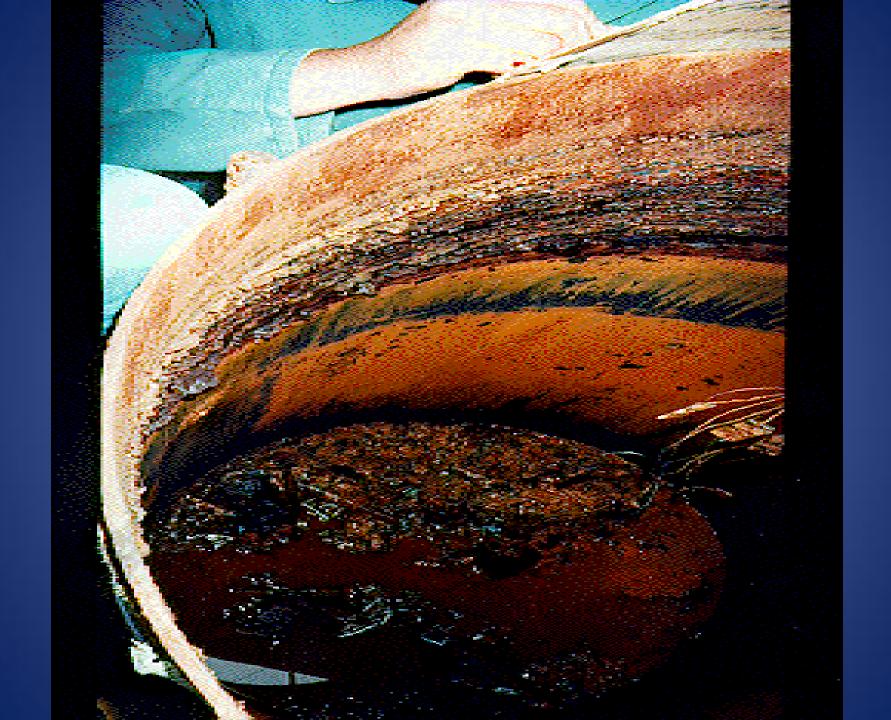
UREA AMMONIUM NITRATE CHARACTERISTICS/CORROSION

Specialty Process Consulting, LLC Michael Orr

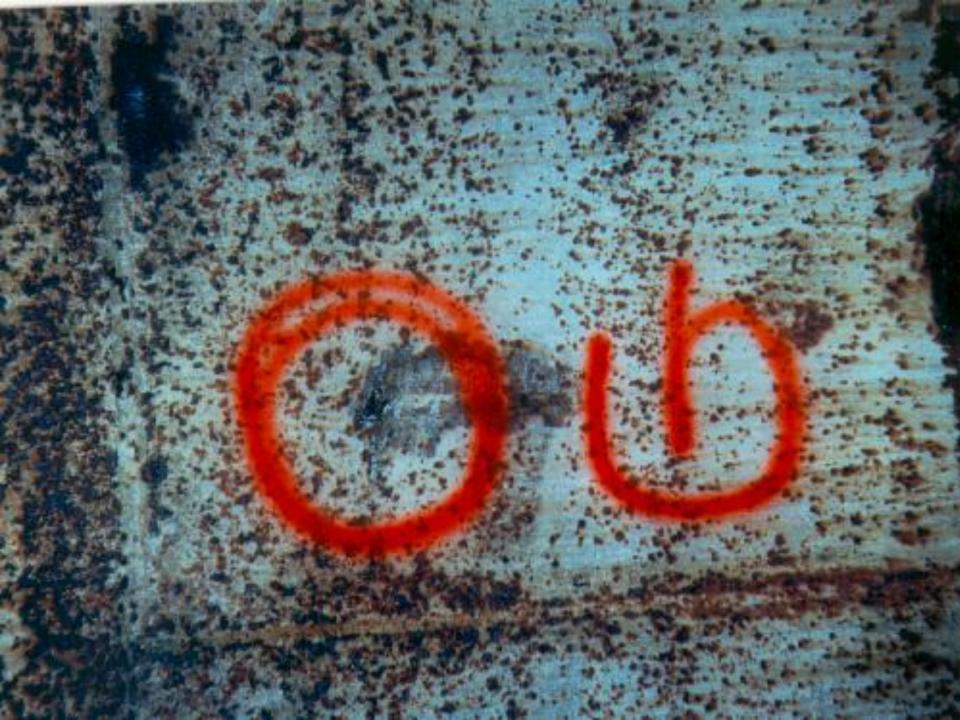
DECEMBER 8, 2010

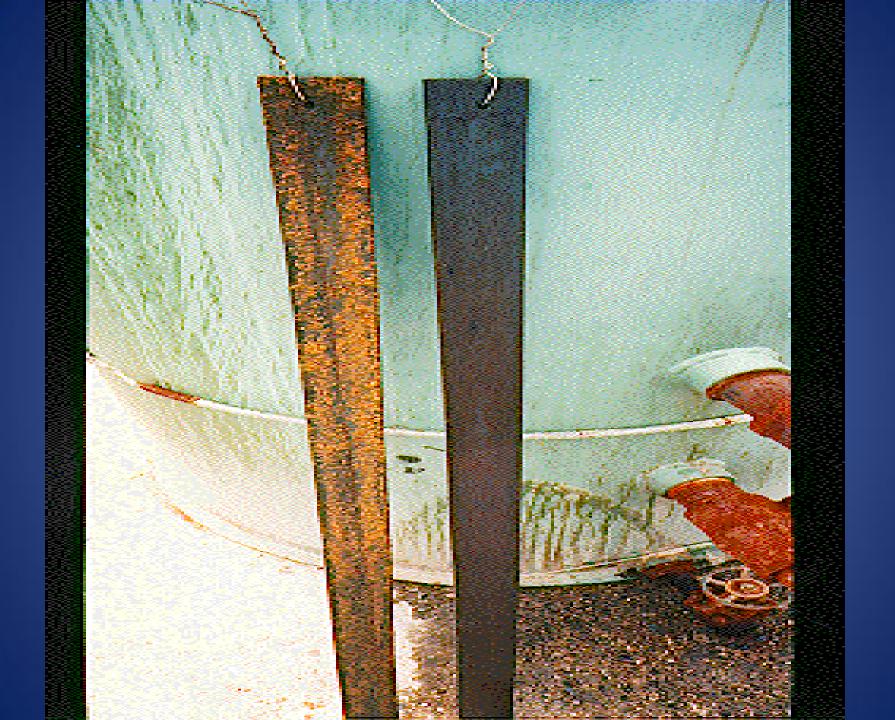
UAN NITROGEN RATIO

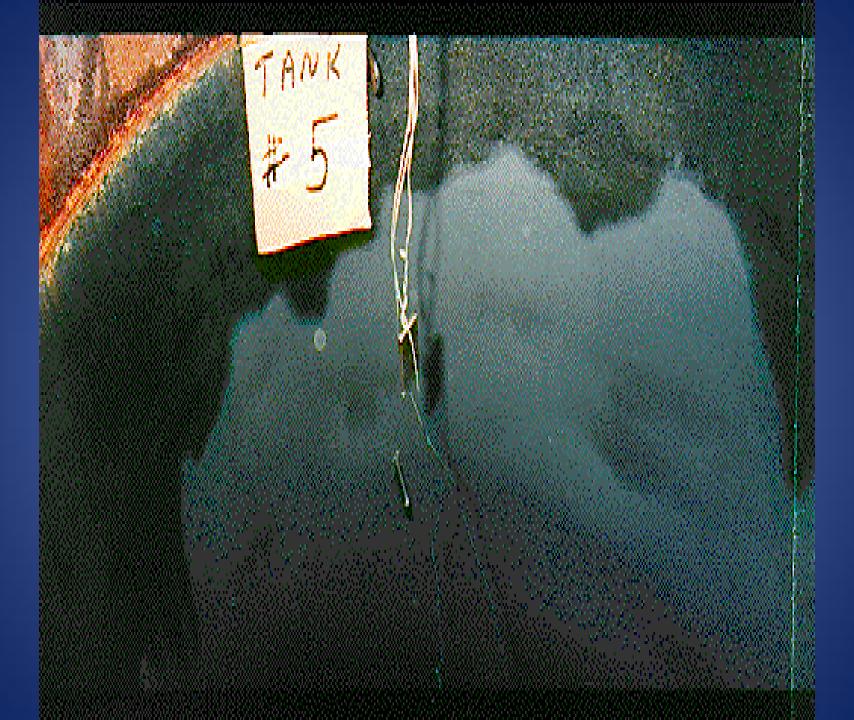
- TYPICALLY ABOUT A 60/40 UREA/AN
- HOW TO MAKE GRADE
- FREE AMMONIA
- pH
- CLEAN YOUR TANKS!!!!!!!!!!!



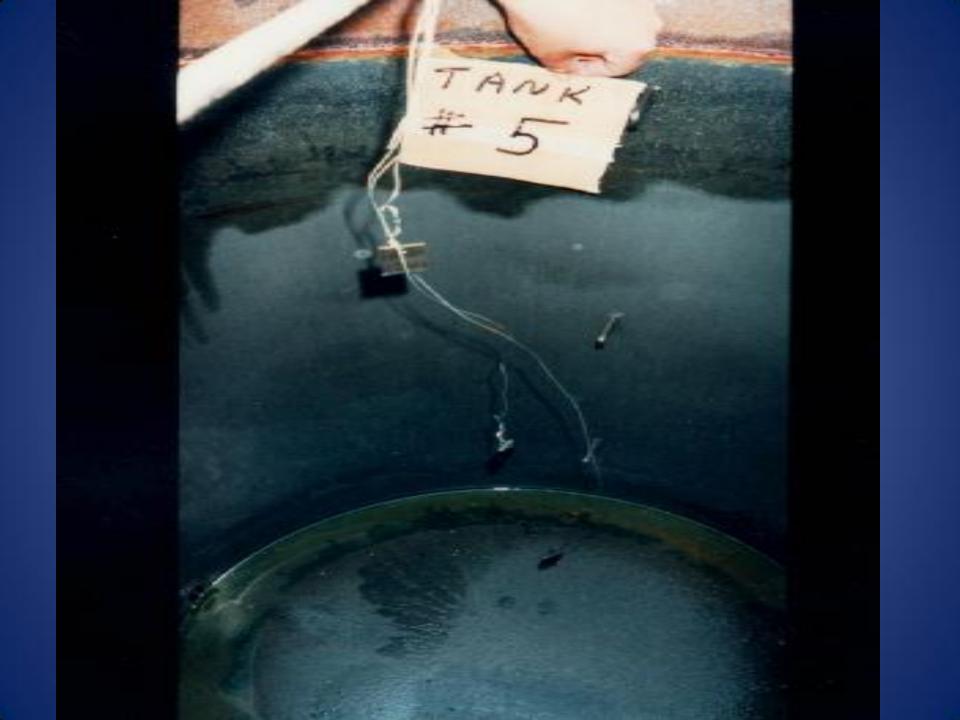


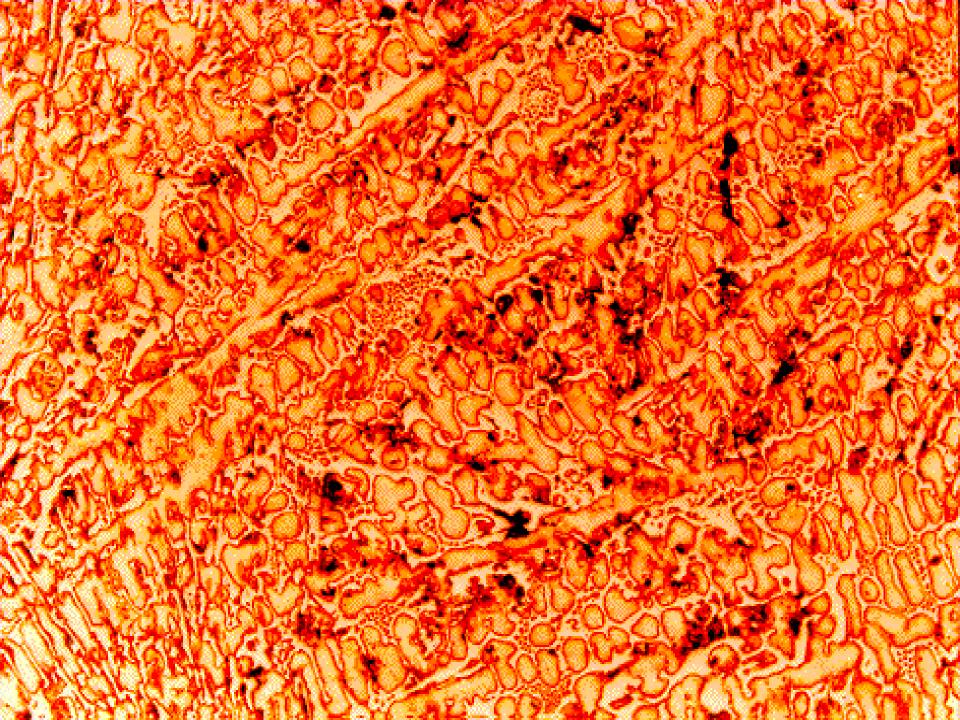


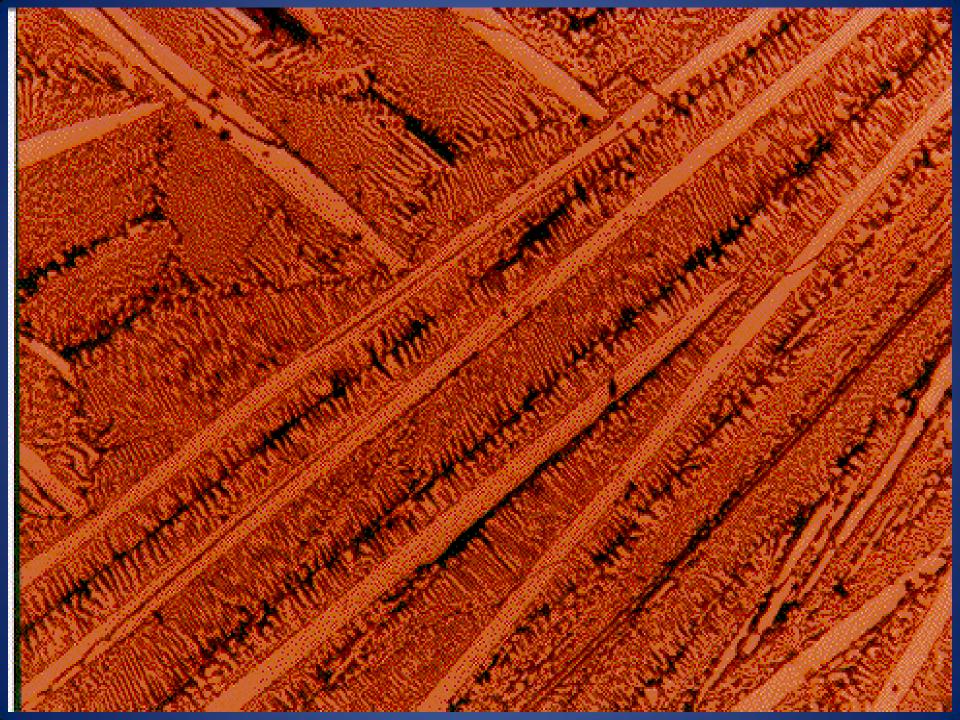


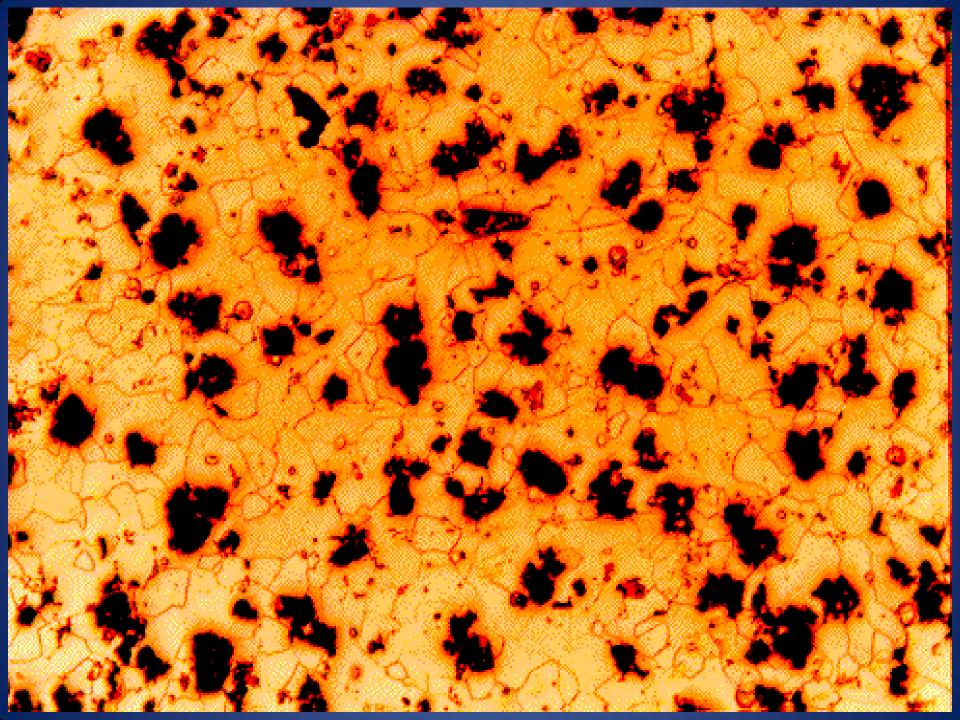


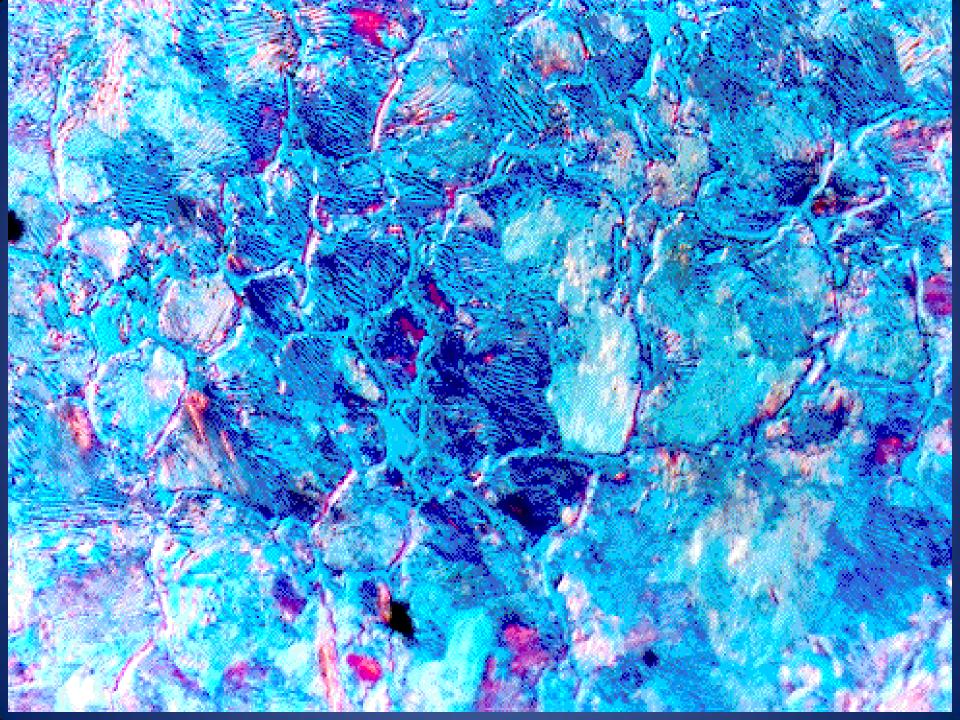


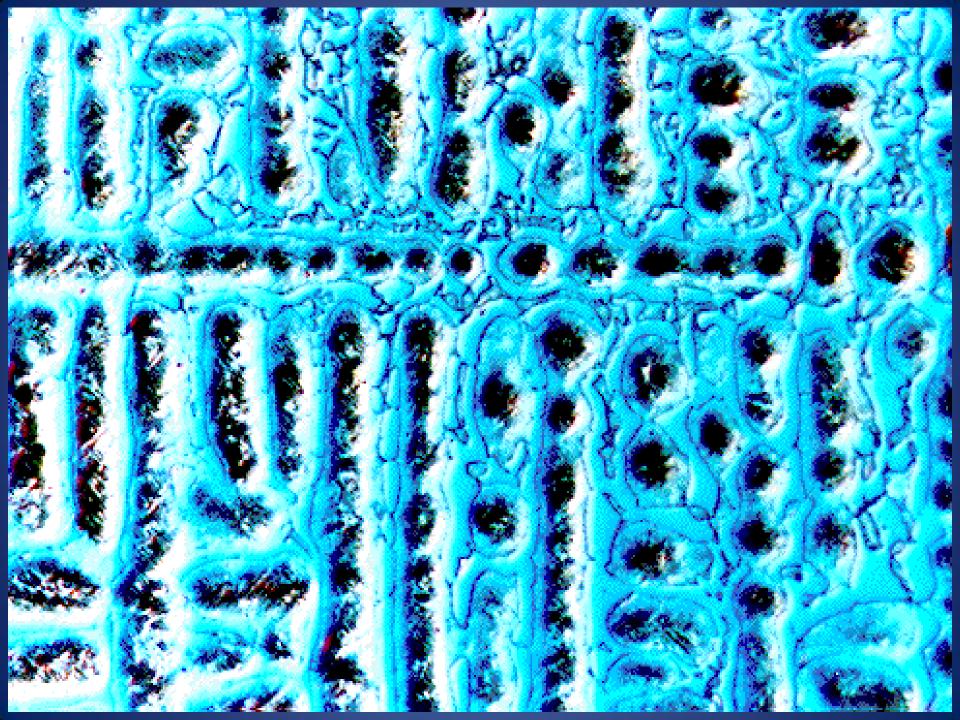






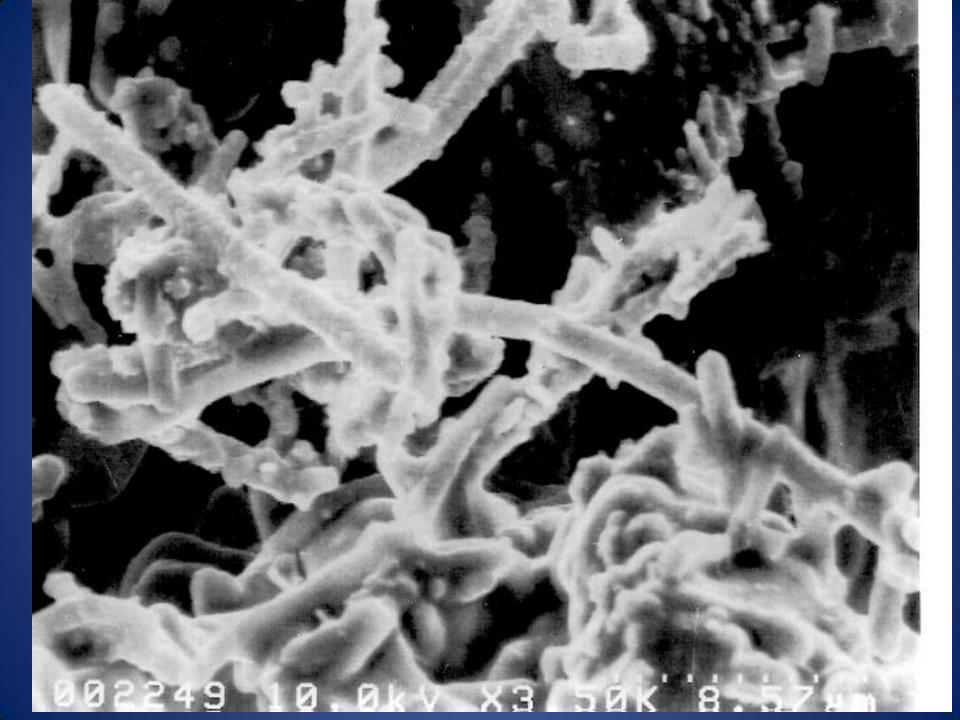






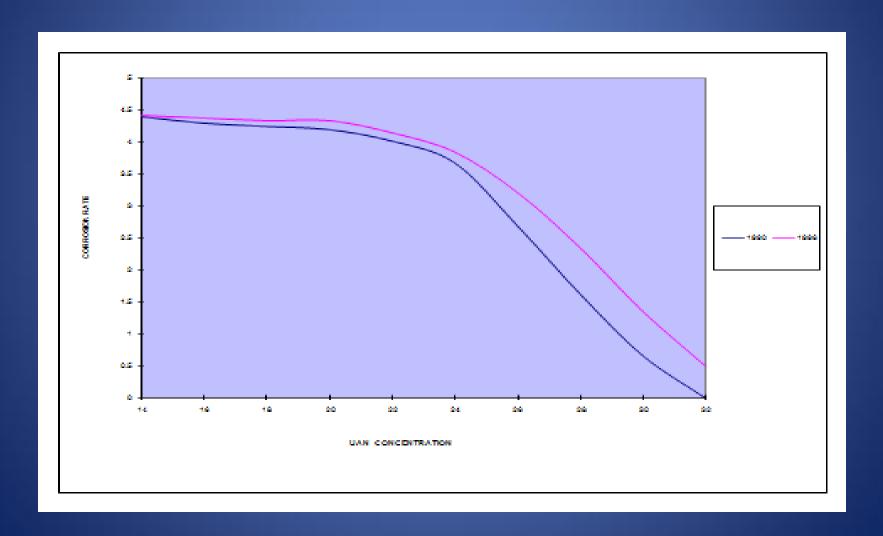




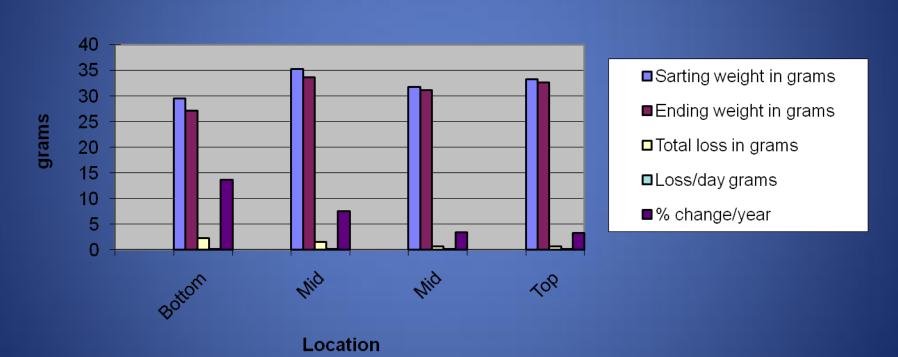


- Corrosion Control Options
- Polymer tank coatings:
- Extensively used in large storage tanks
- Tank Bladders
- Increasing interest due to regulatory interest allowing tank to be used as secondary containment
- Chemical Additives:
- Chemical Additive/coating

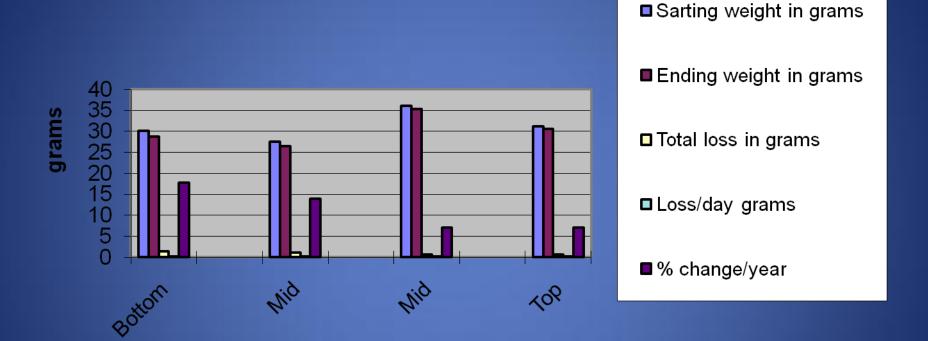
Concentration vs. Corrosion



Air Sparged Corrosion Study



Static UAN Corrosion Study



Location

UAN STORAGE

- CARBON STEEL STORAGE
 - CLEANING
 - COATINGS
 - BLADDERS
- POLY TANKS
- PIPING
 - PRESSURE GENERATION

QUESTIONS

MICHAEL ORR
SPECIALTY PROCESS CONSULTING