



# New ASTM methods MUR 2010

**William Lipps**  
**Market Specialist – Water Analyzer Products**  
**OI Analytical**

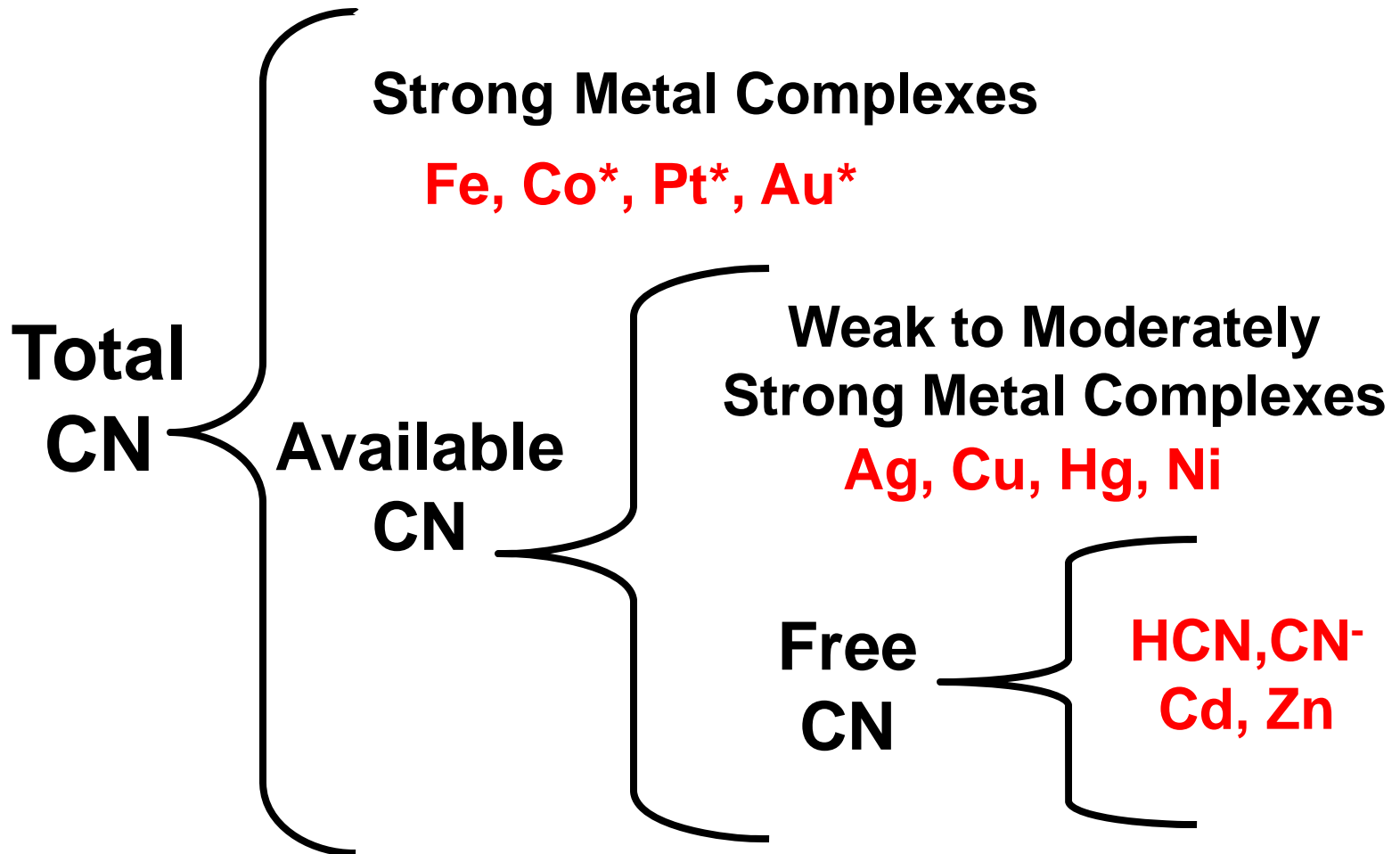
CN

NH<sub>3</sub>

PO<sub>4</sub>

NO<sub>3</sub>

# Cyanide methods that measure the various cyanide “species”

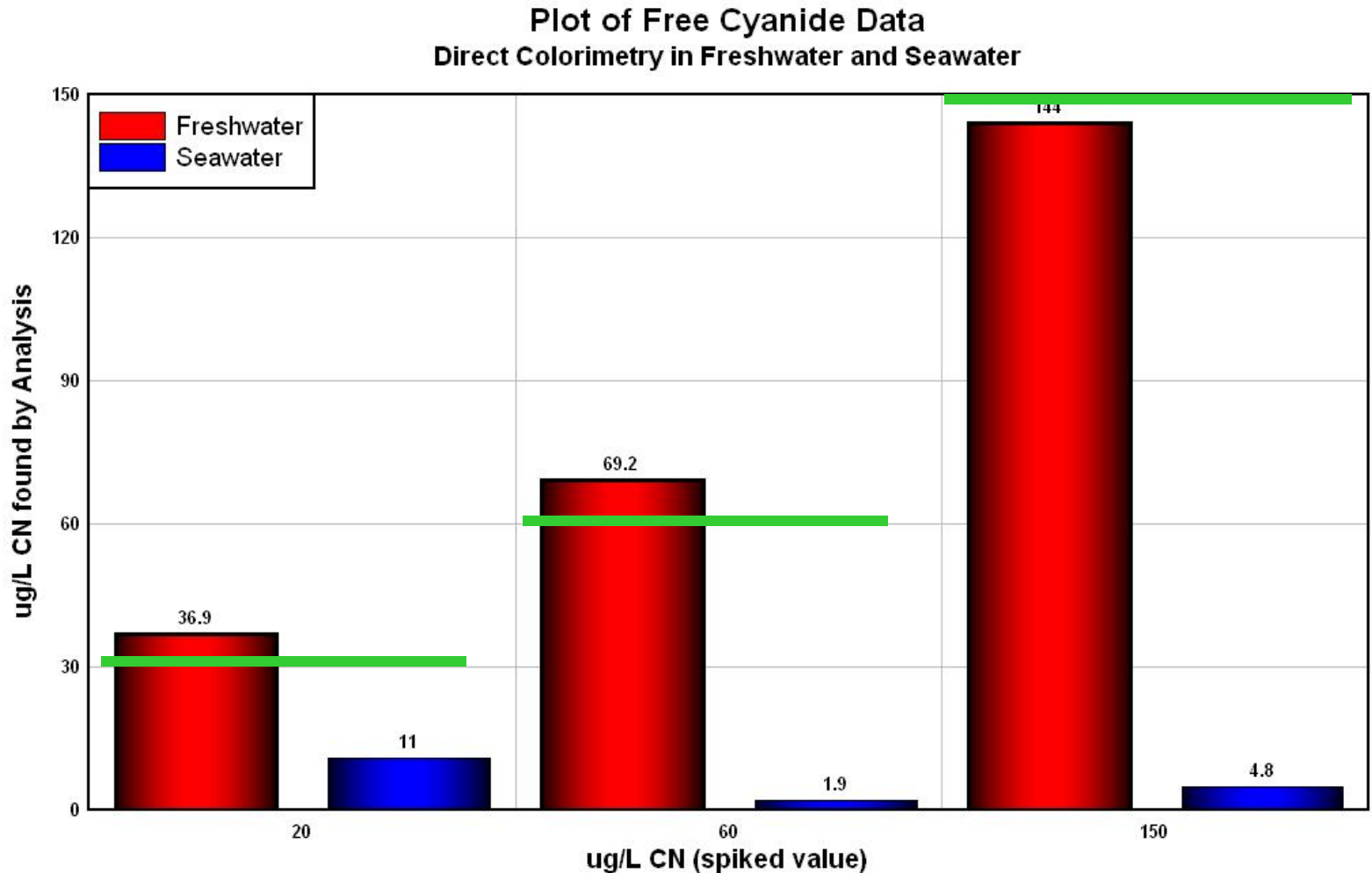


\* partial

# Two “free” cyanide methods

Method	Description	Measurement
ASTM D4282	micro diffusion	Colorimetry
ASTM D7237	FIA	Gas Diffusion-Amperometry

# Direct colorimetry is not measuring free cyanide



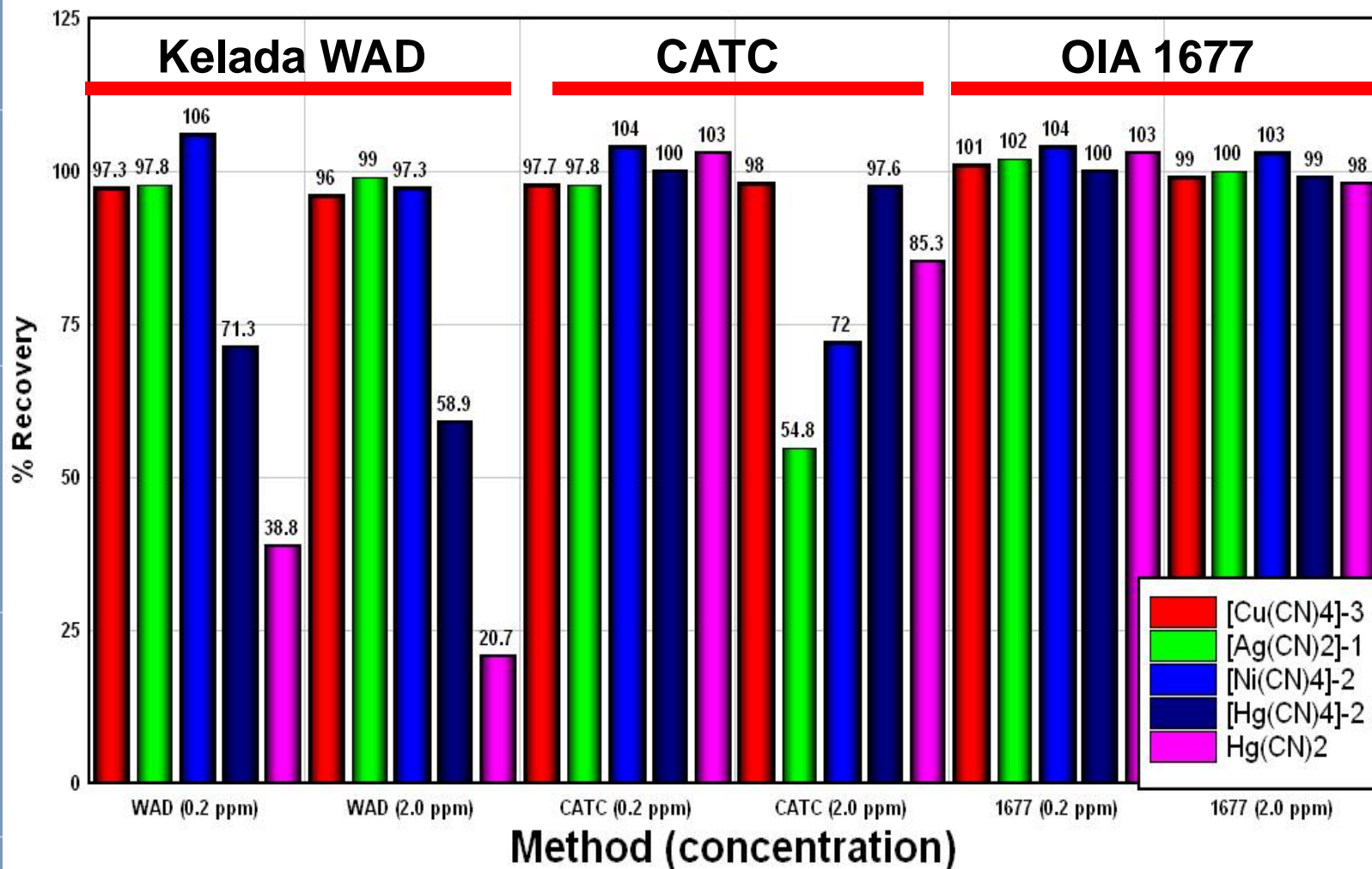
# GD-amperometry methods for available cyanide instead of CATC

Descriptive Name	Method Number	Description	Measurement
Available Cyanide	OIA 1677	Ligand Exchange / Flow Injection Analysis	Gas Diffusion - Amperometry
	ASTM D 6888	Ligand Exchange / Flow Injection Analysis	Gas Diffusion - Amperometry

**No chlorination,  
distillation or pyridine  
required**

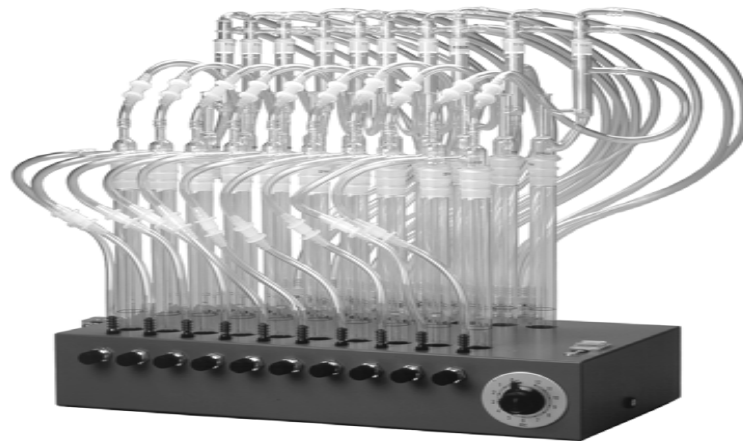
# Quantitative recovery compared to WAD & CATC

Comparison of Recoveries by Available Cyanide Methods  
Concentration Dependent Recovery by Cyanide Species



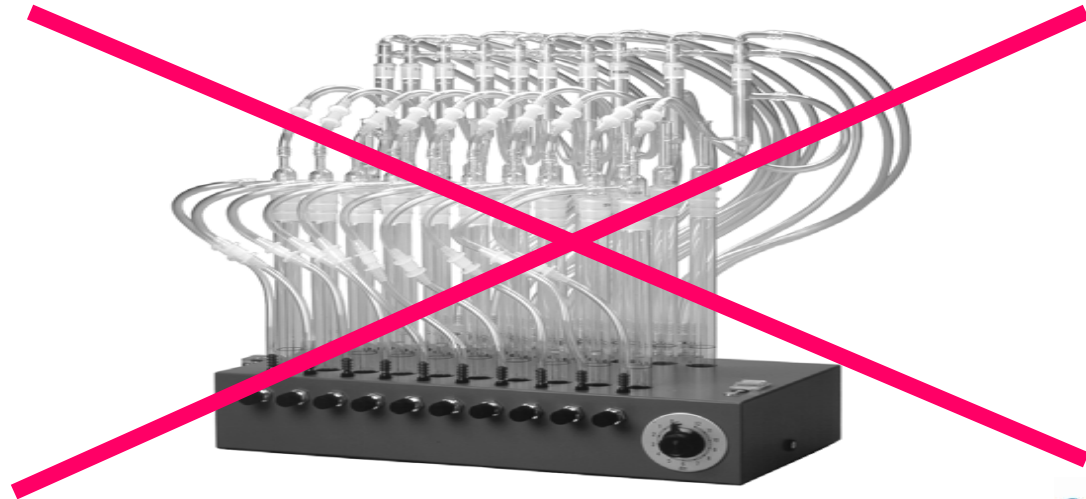
# Total cyanide methods using manual distillation

Descriptive Name	Method Number	Description	Measurement
<b>Total Cyanide</b>	<b>ASTM D 7284</b>	<b>Midi / Micro Distillation – MgCl<sub>2</sub></b>	<b>Gas Diffusion - Amperometry</b>



# Automated total cyanide method uses UV to liberate HCN from Fe

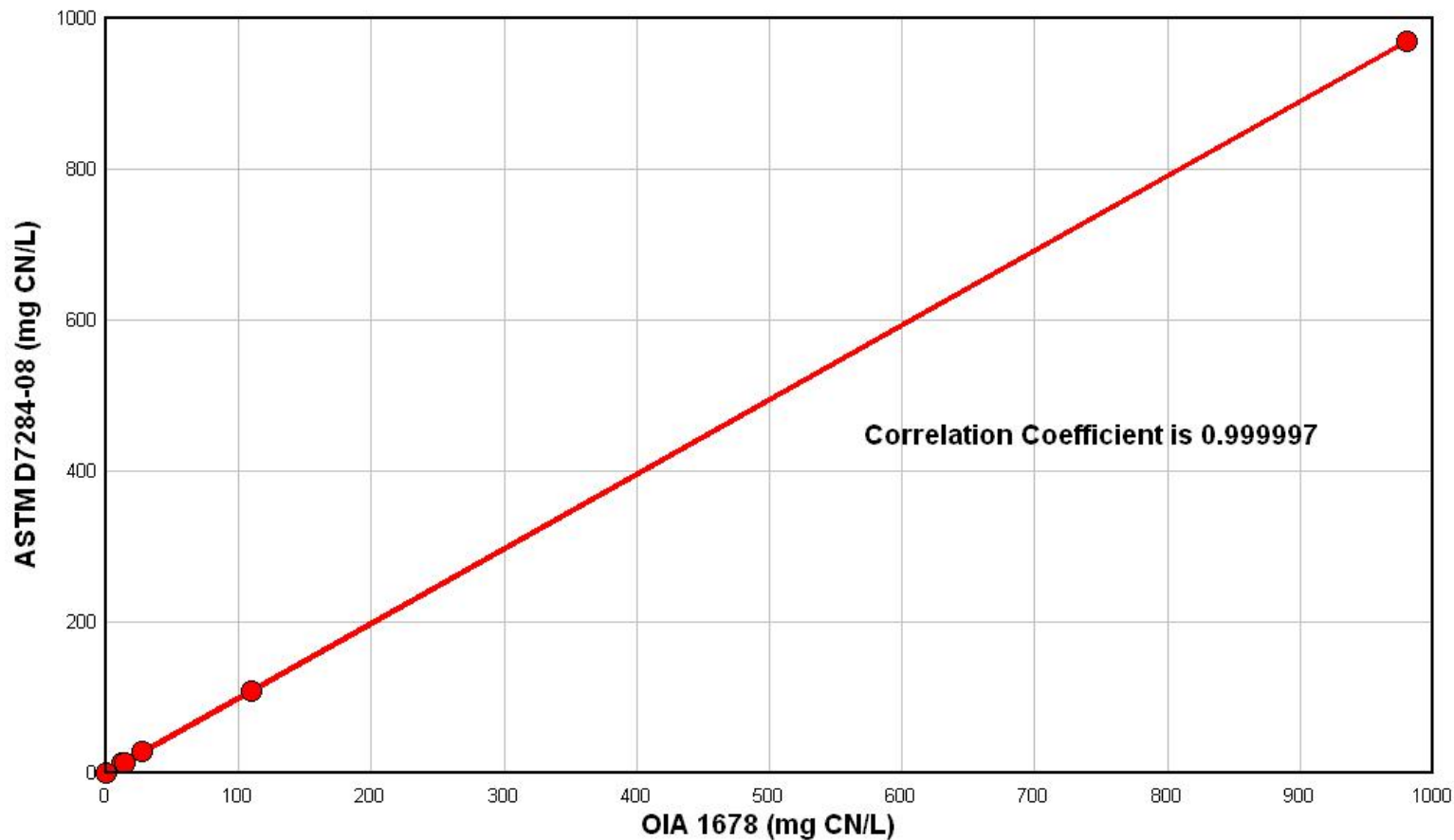
Descriptive Name	Method Number	Description	Measurement
Total Cyanide	ASTM D7511	Low power UV- pH <2	Gas Diffusion - Amperometry



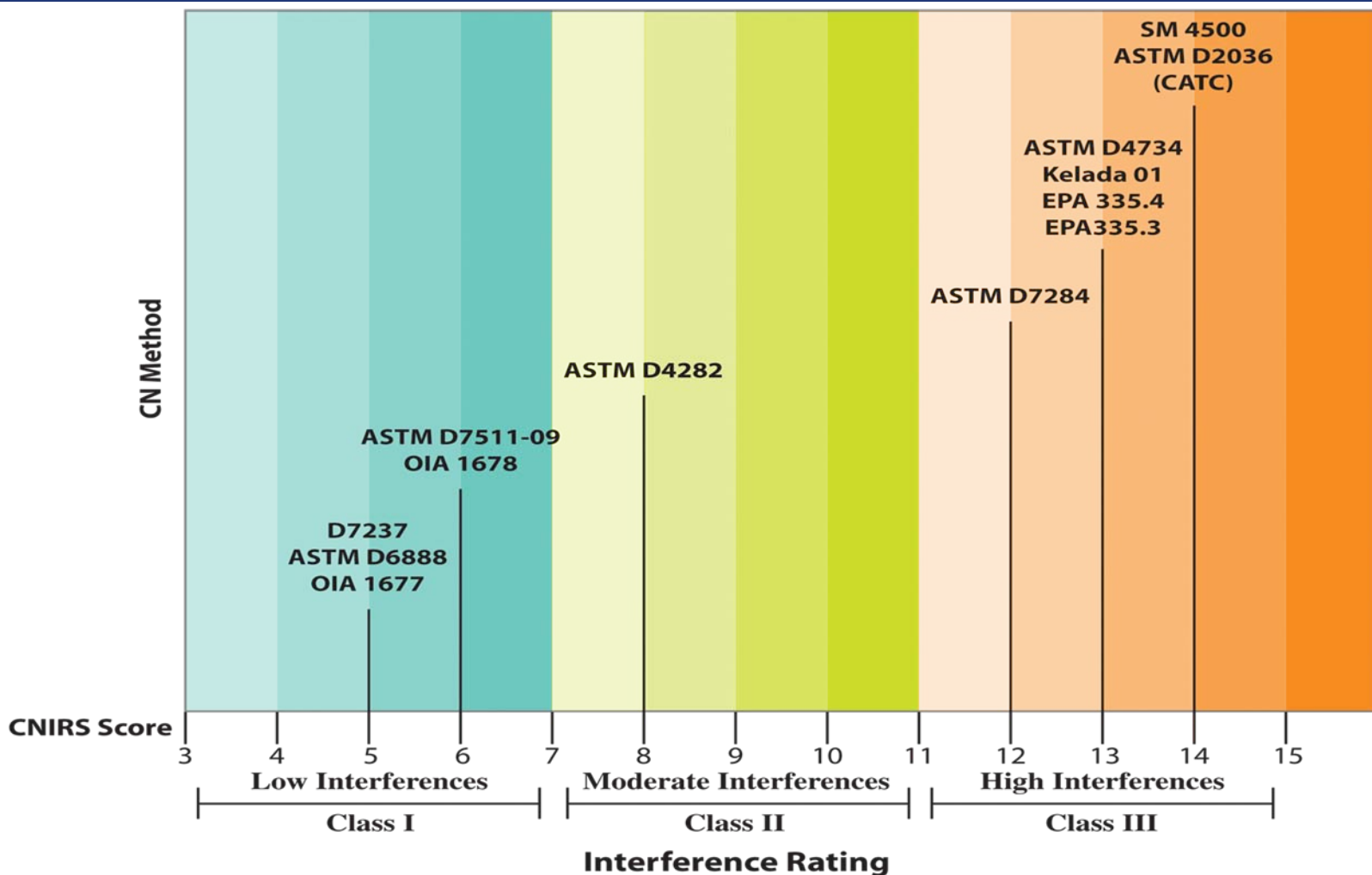


# ASTM D7511 and ASTM D7284-08 get the same result

Comparison Distillation with Non Distillation Methods  
Real World Samples



# D7365 - A guide to sampling, preservation, and mitigation of interferences



# D888-09 for determining dissolved oxygen in water



CN

NH<sub>3</sub>

PO<sub>4</sub>

NO<sub>3</sub>

# ASTM D7571-10e determines Oil & Grease by filtration and IR



CN

NH<sub>3</sub>

PO<sub>4</sub>

NO<sub>3</sub>



# ASTM D7573-09 for catalytic oxidation organic carbon

CN

NH<sub>3</sub>

PO<sub>4</sub>

NO<sub>3</sub>





# ASTM – applying new technology for conventional analytes

CN

NH<sub>3</sub>

PO<sub>4</sub>

NO<sub>3</sub>

