

# "SAFETY IS NOT EXPENSIVE - IT IS PRICELESS"

Online Analyzer Systems for Safety and Control of Chlorine Production Plants



**Why? Quality Control**  
Gas Chromatography

range: 0 – 1%vol H<sub>2</sub> | 0 – 5%vol O<sub>2</sub> | 0 – 2%vol CO<sub>2</sub> | 0 – 2%vol N<sub>2</sub> | 90 – 25%vol Cl<sub>2</sub> (by calculation sum all components subtracts from 100 for % Cl<sub>2</sub>)

**Why? Brine Quality**  
Control sulfate removal

range: 0 – 20 g/kg Na<sub>2</sub>SO<sub>4</sub>

**EZ-Brine<sup>TM</sup>** online sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>) in depleted or return brine

**Why? Safety Critical**  
Precursor value to keep within explosion limits

range: 50 – 100%vol Cl<sub>2</sub>

**EZ-Alert<sup>TM</sup>** online Fast chlorine (Cl<sub>2</sub>) in dry chlorine (Cl<sub>2</sub>) by multi wavelength UltraViolet (UV)

**Why? Safety Critical**  
Precursor value to keep within explosion limits

range: 0 – 5%vol (O<sub>2</sub>)

**OxyLert<sup>TM</sup>** online oxygen (O<sub>2</sub>) in dry chlorine (Cl<sub>2</sub>) by TDLS

**Why? Safety Critical**  
Protect against possible hydrogen explosion

range: 0 – 5%vol H<sub>2</sub>

Fast Response time T<sub>90</sub> < 30 seconds

**EZ-Alert<sup>TM</sup>** online Fast hydrogen (H<sub>2</sub>) in dry chlorine (Cl<sub>2</sub>) by multi wavelength InfraRed (IR)

**Why? prevent Corrosion**  
Protect for possible damage

range: 10 / 20 / 200 ppm (H<sub>2</sub>O)

**EZ-Moist<sup>TM</sup>** moisture (H<sub>2</sub>O) in dry chlorine (Cl<sub>2</sub>) by TDLS

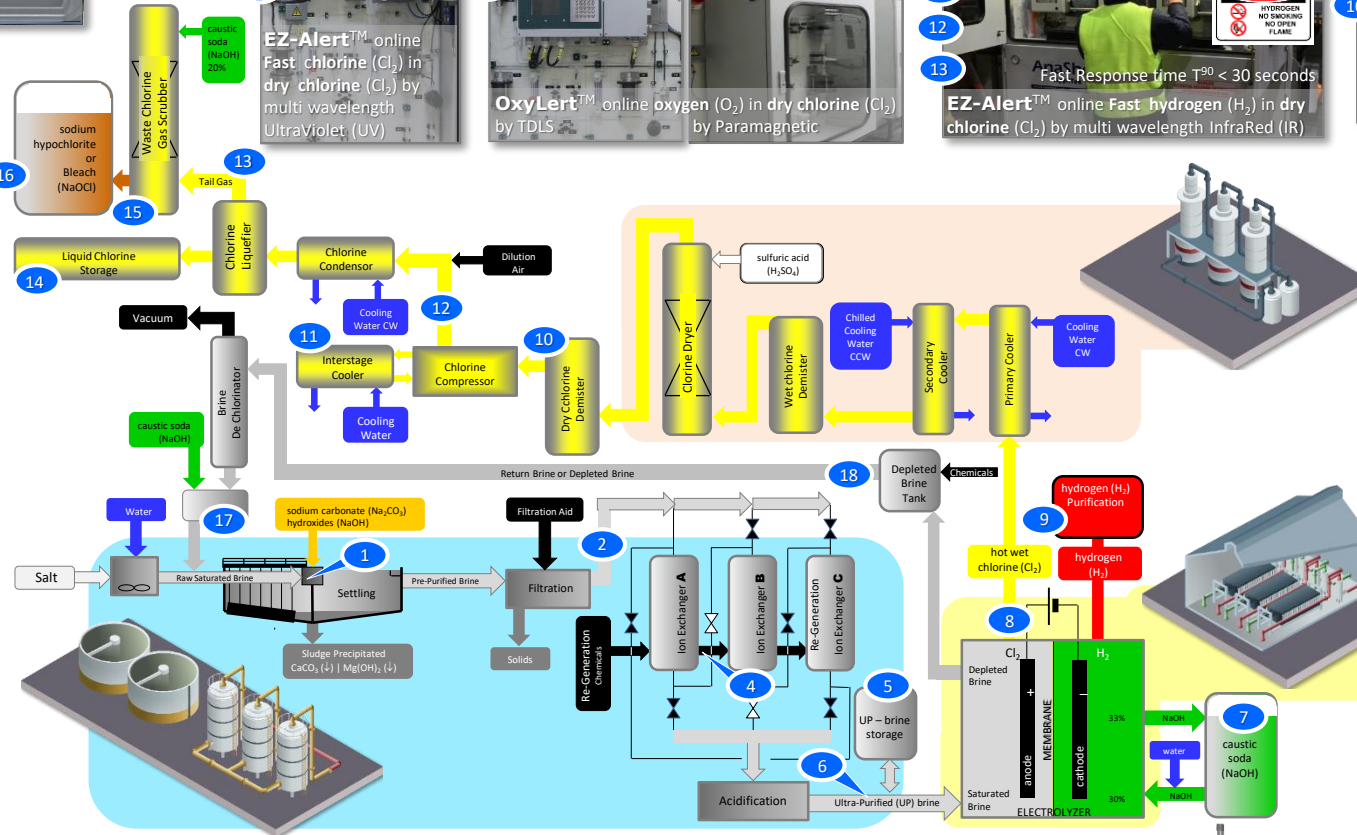
**Why? Safety**

**EZ-Bleach<sup>TM</sup>** sodium hypochlorite (NaOCl) sodium carbonate (Na<sub>2</sub>CO<sub>3</sub>) sodium hydroxide (NaOH) sodium chloride (NaCl) in sodium hypochlorite (NaOCl)

**Why? Brine Quality**  
Up-stream Control Brine Purification

Limit dosage of hydroxides (NaOH) & carbonates (Na<sub>2</sub>CO<sub>3</sub>)

**EZ-Clarifier<sup>TM</sup>** 2 points acid / base pH titration range: 1 g/l NaOH | 1.5 g/l Na<sub>2</sub>CO<sub>3</sub>



range: 0 – 200 ppm<sup>vol</sup> (H<sub>2</sub>)

oxygen (O<sub>2</sub>) in hydrogen (H<sub>2</sub>) by Electrochemical cell

**Why? Safety Critical**  
Protect for possible hydrogen explosion

range: 0 – 100 ppm (Cl<sub>2</sub>)

**EZ-Chloride<sup>TM</sup>** chlorides (Cl<sub>2</sub>) in caustic soda (NaOH) by turbidimetric measurement

**Why? sodium hydroxide Quality**  
Avoid off spec

**Why? Brine Quality**  
Control Brine Filter Cleaning Flush-back

range: 0 – 50 FTU / NTU

Ultrasonic Turbidity in Pre-purified Brine

**Why? Brine Quality**  
Up-stream brine Q Control

range: up to 200 ppm Ca<sup>2+</sup> & Mg<sup>2+</sup>

**EZ-Brine<sup>TM</sup>** online calcium (Ca<sup>2+</sup>) & magnesium (Mg<sup>2+</sup>) in Pre-Purified brine by colorimetric titration

**Why? Brine Quality**  
Avoid membrane damage

range: 0 – 20 - 50 - 100 - 200 ppb

A brine purity online analyzer system that works!

**EZ-Brine<sup>TM</sup>** online calcium (Ca<sup>2+</sup>) & magnesium (Mg<sup>2+</sup>) in Ultra-Purified (UP) brine by colorimetric measurement using hydroxynaphthol blue color indicator (HNB) conform ASTM 3500-Ca

**Why? Safety Critical**  
Avoid nitrogen trichloride (NCl<sub>3</sub>)

**TONI<sup>TM</sup>** special (Total Ammonia) online ammonia (NH<sub>3</sub>) + monochloramine (NH<sub>2</sub>Cl) + dichloramine (NHCl<sub>2</sub>) in UP-brine range: 0 – 2 - 50 mg/l NH<sub>3</sub>

colorimetric using adapted Berthelot method conform ASTM 4500-NH<sub>3</sub>-F

**OxyLert<sup>TM</sup>** online Fast oxygen (H<sub>2</sub>) in hot wet chlorine (Cl<sub>2</sub>) by alternating pressure paramagnetic analyzer

Fast Response time T<sub>90</sub> < 30 seconds

**EZ-Alert<sup>TM</sup>** online Fast hydrogen (H<sub>2</sub>) in hot wet chlorine (Cl<sub>2</sub>) by multi wavelength InfraRed (IR)

**Why? Safety Critical**  
Early Warning – Protect your chlorine plant against possible hydrogen explosion