



Amine and  
Solvent Management  
Around the World

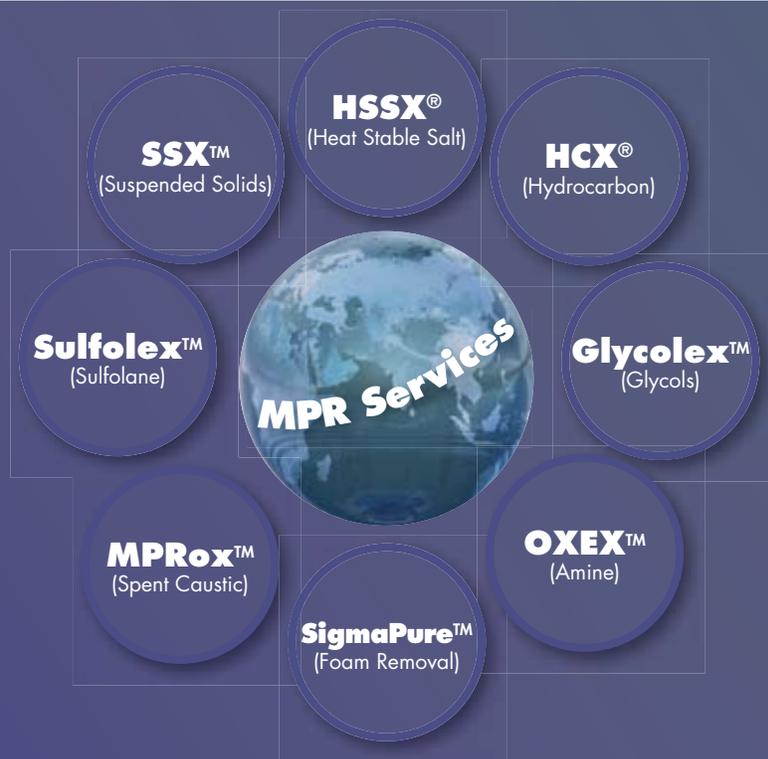


# What we do...

## Amine and Solvent Management Around the World.

Our vast global experience providing online amine hygiene and solvent management to the ammonia, gas, oil, and steel industry places MPR in a unique position to serve its customers. Our dedicated research and development group continues to make improvements in our technologies meeting the challenges faced in dealing with corrosion, suspended solids, hydrocarbon entrainment and infiltration together with the accumulation of heat stable salts and foaming issues. Our R & D group's dynamic knowledge base has resulted in the development of HSSX<sup>®</sup>- heat stable salt removal, SSX<sup>™</sup>-suspended solids removal and HCX<sup>™</sup>-hydrocarbon removal processes. Our service units provide continuous and/or mobile installations to address amine hygiene and solvent management. MPR's programs continue to contribute to the reduction of our customer's operating expenses, along with more stable operations, reduced environmental concerns, and optimum process performance.

MPR Services, Inc. uses their proprietary technologies to provide continuous and/or mobile cleaning services to address solids, hydrocarbons and heat stable salts management. Our goal is to reduce corrosion and optimize performance of our customer's amine and glycol systems using the appropriate technology. MPR Services provides dedicated operations and service personnel and our unique, custom designed equipment. Our years of international experience prepare us to address the unique challenges our customers are faced with in their individual operations.



# How We Do It...

## Improving Gas Treating System Performance

MPR Services enhance gas treating systems in refineries, gas plants, ammonia plants, steel manufacturing and LNG facilities. We supply technically advanced mobile and continuously installed equipment, patented processes and analytical services for cleaning and recovery of gas treating solutions with a corresponding economic and environmental improvement in plant operations.

### MPR offers comprehensive solutions to problems in the following processing areas:

**Gas Treating Systems** - We process a slipstream of the lean solvent, removing the heat stable salt ions. Depending on the specific degradation product, MPR's technology removes amino acids or recovers the solvents (i.e. formamides and oxazolidones). Primary benefits include increased capacity, more stable operating conditions, reduced corrosion and conserves amine consumption. These services are available with either a continuously installed unit or with a mobile unit. In addition, we offer removal of suspended solids and hydrocarbons. These processes are fully automated and specialized for regenerable amine systems:

- HSSX<sup>®</sup> (Heat Stable Salt Removal Service)
- SSX<sup>™</sup> (Suspended Solids Removal Service)
- HCX<sup>™</sup> (Hydrocarbon Removal Service)
- SigmaPure<sup>™</sup> (Foam Abatement)

Our Heat Stable Salts, Hydrocarbons and Solids removal processes are used in other types of gas treating solutions, including glycols and sulfolane.

**MPR's Glycolex<sup>™</sup> Process** - Removes both cation and anion contaminants from common glycols, including monoethylene glycol, (MEG) diethylene glycol (DEG), triethylene glycol (TEG), and tetraethylene glycol (TTEG).

**MPR's OXEX<sup>™</sup> Process** - Converts oxazolidones (degradation product) back to valuable amine resulting in decreased production costs with generation of environmentally friendly waste, a benefit of all of our processes.

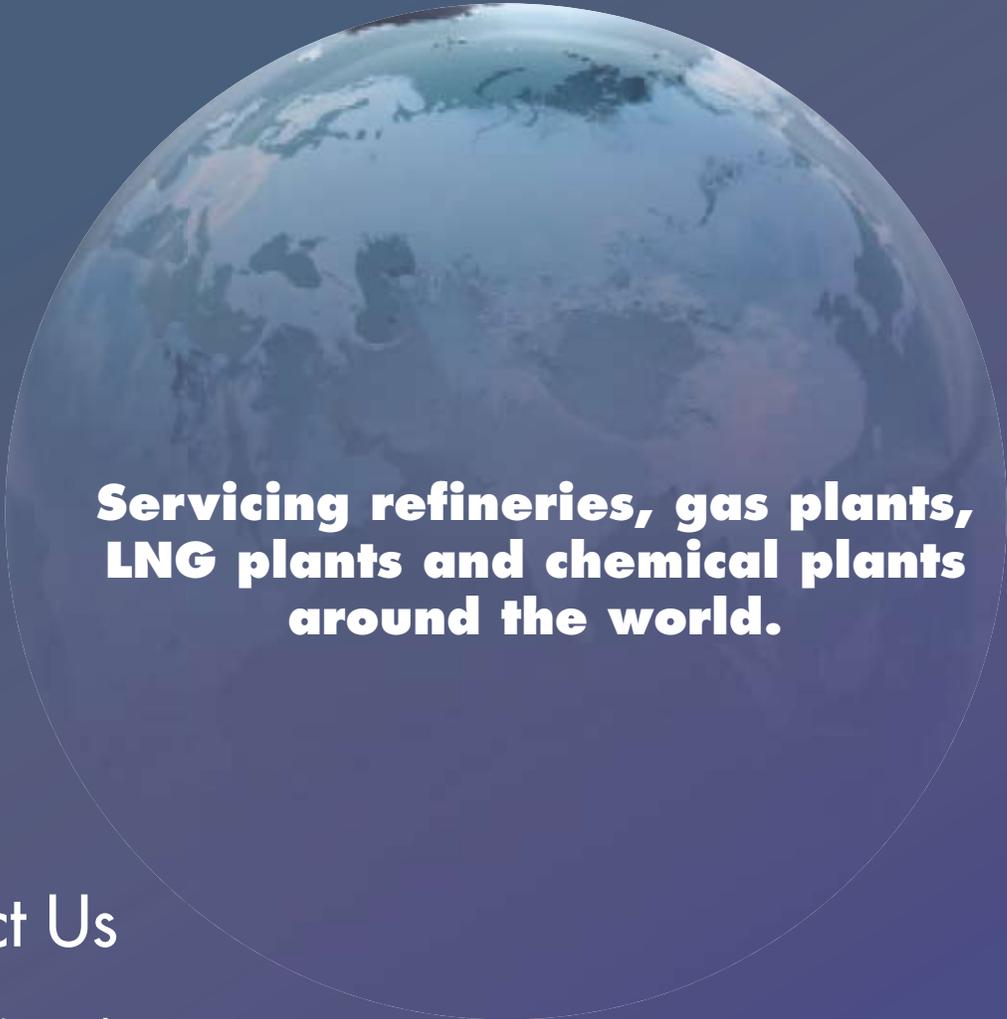
**Spent Caustic Treatments - MPR's MPRox<sup>™</sup> Process** - is an efficient chemical oxidation process for the on-site treating of spent caustics. The MPRox process reduces harmful toxins and odor precursors in your spent caustic; including sulfidic, naphthenic and cresylic effluents. This results in a biodegradable stream that is conducive for processing in a conventional wastewater treatment plant.

**Sour Water Treating Systems** - MPR offers its SWAT<sup>™</sup> Program for the abatement and cleanup of sour water. Either mobile or continuous, these units work in parallel with existing Sour Water Stripping Equipment to handle excess load or particularly onerous water streams.

**Our Cyntral<sup>®</sup> Program for Cyanide Control**, - Decreases the possibility of cyanide assisted corrosion while significantly reducing the potential for free cyanide in the refinery's wastewater effluent. MPR performs a unique on-site analysis of free cyanide levels to optimize the Cyntral (ammonium polysulfide- APS) cyanide control service. Due to the reactive nature of free cyanide, this on-site program is valuable to the refinery in the diagnosis and follow-up recommendations to efficiently and economically address this issue. MPR and its parent, Tessengerlo Kerley, is the World's largest supplier of Cyntral for the scavenging of fugitive cyanide.

**Environmentally Clean Systems (ECS)**, MPR Services, Dickinson, Texas and JET Oil Solutions (JET) of Salt Lake City, Utah, have formed Environmentally Clean Systems (ECS), a joint venture, serving the oil and gas industries. ECS will provide water treatment for; produced, frac, flow back and black water. ECS will utilize their expanded HVLC<sup>™</sup> electro-coagulation process in conjunction with MPR's unique technologies in addressing these waste water issues. The ECS's process allows for the reduction and elimination of reagents and equipment associated with many chemical systems applications resulting in lower reclamation costs and greater flexibility in waste water disposal. ECS will be headquartered at MPR's Dickinson, Texas location and may be contacted at [info-ecs@tkinet.com](mailto:info-ecs@tkinet.com). For additional information on ECS go to [www.ecswater.com](http://www.ecswater.com)





**Servicing refineries, gas plants,  
LNG plants and chemical plants  
around the world.**

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