UCARSEP™ Solvent Purification Technology

Keeping Amine Systems On-Line and Corrosion-Free
Maximize Capacity, Increase Energy Efficiency and Lower Operating Costs with the AMINE MANAGEMENT℠ Program

A unique and comprehensive service offering from Dow Oil & Gas, the AMINE MANAGEMENT℠ Program targets gas treating amine systems to achieve environmental compliance while improving reliability, reducing energy costs and preserving the integrity of assets. A Dow Oil & Gas professional will provide a complimentary amine unit evaluation, detailing the site’s specific gas treating needs and recommending a customized solution to improve gas treating performance. Using our advanced simulation capabilities and leveraging our wide selection of specialty solvent blends, we can help maximize capacity, increase energy efficiency and lower operating costs. Periodic follow-up evaluations are also provided to help maintain these efficiencies.
**Remove Salts Without Disrupting Operations**

Keeping heat-stable amine salts (HSAS) in check is a perpetual challenge for refinery operators. HSAS contamination is a known cause of corrosion and is also attributed to reduced amine capacity, poor unit operations, reduced solvent life and solvent disposal problems.

Dow offers a cost-effective, clean and efficient solution to remove heat-stable salts without disrupting amine system operations: **UCARSEP™ Solvent Purification Technology**. A core element of Dow’s comprehensive AMINE MANAGEMENT™ Program, the patented UCARSEP technology is also a key part of an ongoing heat-stable salt management strategy.

**UCARSEP Solvent Purification Technology:**

- **Reduces corrosion potential** – Dow’s patented process enables customers to control non-regenerable salts in the amine units, avoiding downtime and preventing excessive amine losses.
- **Simple to set up and operate** – Both permanent installations and mobile units are available, enabling operators to select the right system for their needs. No regeneration chemicals or any fuel-gas supply are required for either system. Ongoing service and support from Dow are always included.
- **Generates a non-toxic, easy-to-manage waste stream** – Salts are removed into a separate brine stream that can generally be discharged to a conventional wastewater treatment facility, eliminating or substantially reducing disposal costs and reducing environmental concerns.

**UCARSEP™ Solvent Purification Technology** is a proprietary process that reduces corrosion potential by effectively and efficiently removing heat-stable salts from amine systems, without many of the environmental concerns associated with alternative ion-exchange methods. The process can run continuously or be repeated periodically as needed to meet individual amine system requirements.
**Deliver a Clean Amine Stream with the UCARSEP™ Process**

UCARSEP™ Solvent Purification Technology operates via electrodialysis (see Figure 1). As an electric current passes through the system’s semi-permeable membranes, salts are removed from the contaminated solvent and concentrated in an aqueous brine stream. In most cases, this nontoxic brine stream can be discharged to a wastewater treatment facility. The purified solvent is then returned to the amine system for ongoing use. The time required for purification depends on the size of the amine system and the level of contamination.

Refineries around the world have experienced the benefits of the UCARSEP process. It has been successfully used to clean UCARSOL™, specialty methyl diethanolamine (MDEA), diethanolamine (DEA) and diisopropanolamine (DIPA) solvents without disrupting amine system operations.

**Two System Options. One Versatile Technology.**

Both permanent and mobile systems are available with the versatile UCARSEP™ technology. Permanent units can be used when continuous ion removal is desired to maintain compliance, while mobile units (see Figure 2) offer flexibility for continuous or as-needed treatment with a smaller footprint. Both options enable solvent purification to be performed without unit shutdown, solvent removal or disruption of amine system operation.

**Figure 1: Solvent Purification via Electrodialysis**

**Figure 2: UCARSEP™ Mobile Unit Connected to Typical Gas Treating Amine System**

The fully automated UCARSEP™ mobile unit offers simplicity and flexibility in a compact, self-contained system. As with the permanent system, the mobile unit runs continuously until solvent purification is complete.
Experience You Can Trust

Dow has been helping customers meet their gas treating needs for more than 65 years. Backed by more than 1,000 global references in gas treating, we work to maximize value for our customers through extensive industry knowledge, advanced innovation and chemistry expertise.

A Note About Product Safety

When considering the use of any Dow products in a particular application, you should review the latest Material Safety Data Sheets from Dow and ensure that they are intended for safe use. For other products mentioned in the text, you should obtain the current Material Safety Data Sheet and other available product safety information when reviewing and take necessary steps to ensure safety of use before handling.

No chemical should be used as or in a food, drug, medical device or cosmetic, or in a product or process in which it may contact a food, drug, medical device or cosmetic until the user has determined the suitability and legality of the use. Since government regulations and use conditions are subject to change, it is the user’s responsibility to determine that this information is appropriate and suitable under current, applicable laws and regulations.

Dow requests that the customer read, understand, and comply with the information contained in this publication and the current Material Safety Data Sheet(s). The customer should furnish the information in this publication to its employees, contractors and customers, or any other users of the product(s), and request that they do the same.
To Learn More...

U.S., Canada, Mexico: Phone: 1-800-447-4369 Fax: 989-832-1465

Latin America: Phone: +55 11-5188-9222 Fax: +55-11-5188-9749

Europe, Middle East: Phone Toll Free: +800-3-694-6367*

    Phone: +32 3-450-2240 Fax: +32 3-450-2815

Asia Pacific: Phone Toll Free: +800 7776-7776*

    Phone: +60 3-7958-3392 Fax: +60 3 7958 5598

Middle East (Dubai): Phone: +971 4 332 8866 Fax: +971 4 332 8280

North Africa (Cairo): Phone: +202 2 480 1465 Fax: +202 2 480 1478

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