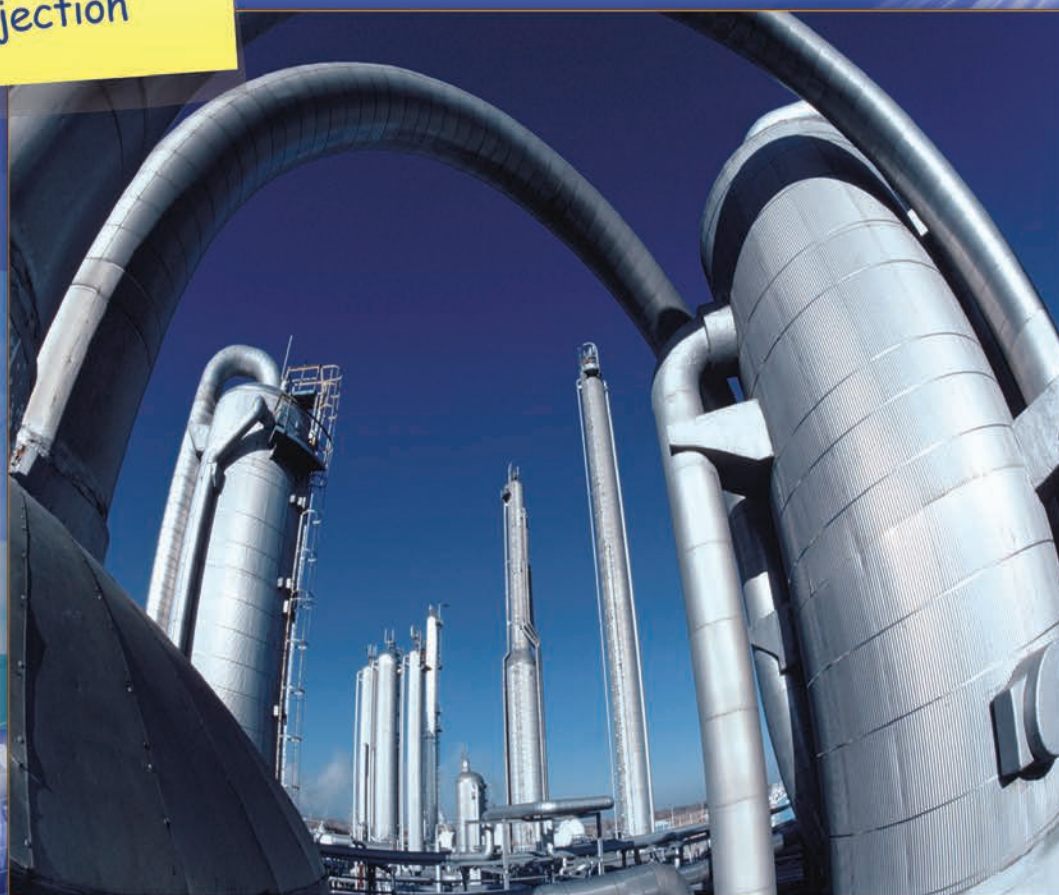


New High  
Pressure Pumps  
for  
DMDS & Amine  
Injection



## Service for Catalyst Sulfiding.

- Professional
- Safe
- Environmentally Friendly
- Controlled

For over 50 years, Arkema has been the world leader in the field of organosulfur products and technology. Our rich history has deep roots in the organosulfur business—we were the first company to synthesize mercaptans on a commercial scale. Since then, we've been supplying the refining industry with quality products and service for sulfiding hydroprocessing catalysts.

## We offer the most efficient and highest purity sulfiding agents in the industry.

- Dimethyl Disulfide Evolution2 (DMDS E2)...The Industry Standard with a friendly odor
- Dimethyl Disulfide (DMDS)...The Industry Standard

DMDS Evolution® (DMDS E2) from Arkema gives you all the effectiveness of DMDS with special ingredients added to improve its odor and performance. You get all the benefits of the world's leading sulfiding agent without worrying about the smell.

Dimethyl Disulfide (DMDS) is the preferred sulfiding agent throughout the world. Its high sulfur content and low decomposition temperature ensures high catalyst activity.

**We offer more than just a sulfur chemical... we provide the technical knowledge and assistance you need for efficient, hassle-free catalyst sulfiding. This is called Careflex® Service.**

# ISO 9001:2008 CERTIFIED

## DELIVERY EQUIPMENT AND GENERAL SPECIFICATIONS

### MC330/331 – Tank Truck Trailers

Trailer length	30 - 40 feet	
Trailer width	8 feet	
Trailer height	10 -12 feet	
Carrying capacity	36 - 40,000 lbs.	
Maximum working pressure	125 - 250 psig	
Manifold Box	Located 8 -10 feet from rear of trailer on curb side	
Size of piping of the manifold	Liquid	1 1/2" welded 150# or 300# with 1 1/2" threaded outlet
	Vapor	3/4" welded 150# or 300# with 3/4" threaded outlet
Meter	Meter	1 1/2" Brooks oval with Kessler-Ellis register, battery operated
	Register display	Rate in GPM, Resettable Totalizer in gallons, Non-Resettable Accumulative Totalizer in gallons
	Range	1 - 60 GPM
Hoses	Liquid hose	1" Teflon® lined chemical transfer hose
	Length of hose carried	80' (20 foot sections)
	Hose working pressure	350 psig
	Couplings	1", 1 1/4" and/or 1 1/2" NPT
	Vapor hose	3/4" high pressure
	Length of hose carried	80' (1 x 40 feet, 2 x 20 feet)
Vapor hose working pressure	1250 psig	
Couplings	3/4" NPT	

### ISO Tanks IM101

Length of chassis with ISO tank mounted	38 - 40 feet	
Chassis width	8 feet	
Height of tank mounted on chassis	11.5 -12.6 feet	
Carrying capacity	38 - 44,000 lbs.	
Maximum working pressure	58 - 87 psig (4-6 Bar) (1 Bar=14.5 psig)	
Valve location	Top rear	
Valve size	Liquid	2" 150# ANSI flanged
	Vapor	1 1/2" 150# ANSI flanged
Relief valve location and number of valves	2 located on top of container	
Pressure setting	58 - 87 psig (4-6 Bar) (1 Bar=14.5 psig)	
Rupture disc location and number of discs	2 (1 located under each relief valve)	





## CARELFLEX® SERVICE

### Professional Advice in Selecting the Sulfiding Product that is Best for Your Process

Arkema's extensive experience with over 3,500 in-situ catalyst sulfiding jobs worldwide is your asset as you prepare to sulfide your catalyst. Our technical specialists will help you choose the sulfur product that is optimal for your operation. Arkema offers the most effective and efficient sulfiding agents in the industry.

### Delivery of the Sulfiding Agent

Once a desired delivery date is selected, Arkema can provide high quality product to meet your sulfiding schedule. We can also recommend a container or containers most suitable to your situation. We offer a complete line of semi-bulk and bulk containers to meet your needs.

### On-Site Technical Service

Careflex® service provides the assistance of a specialized Arkema sulfiding technical expert for hook-up and controlled delivery of the sulfiding product. This ensures accurate and controlled sulfiding under safe conditions. The refiner benefits from Arkema's vast experience with thiochemicals and maintains complete control of the operation. The result is maximum catalyst activity and extended run times.

### Sulfiding Summary Report

Following the operation, Arkema will provide the refiner with a summary report of the sulfiding process.

## IMPLEMENTATION OF CARELFLEX® SERVICE

### Step 1

As the refinery prepares for in-situ sulfiding of hydroprocessing catalyst, a questionnaire is completed by refinery personnel. This questionnaire is used to give a brief description of the unit to be sulfided, its working conditions and available equipment. The aim is to enable Arkema's technical services to propose the equipment best suited to the specific nature of the unit.

### Step 2

Definition of the commercial conditions for the sulfiding operation, including the product delivery date and sulfiding date. It is understood that turnaround dates may shift. Arkema is well positioned to support such changes in the schedule.

### Step 3

Technical specialists from Arkema are available to discuss off-loading system requirements specific to your unit and will come to your site to mutually define the equipment required for the sulfiding operation if desired.

### Step 4

- Product delivery
- Hook-up of hoses/hardpipe/equipment
- Pressure test sulfide lines/fittings
- Sulfide injection at a controlled flow rate
- No hassle odor-free disconnect of hoses/fittings

### Step 5

Return any unused, uncontaminated sulfiding agent to Arkema.

### Step 6

The Arkema technician sends the refiner a completed Careflex® Service technical report on the sulfiding operation within four weeks.

## CUSTOMER RESPONSIBILITIES

- Complete Careflex® Service questionnaire and return to Arkema.
- Provide safety training to Arkema personnel if needed and confirm any offsite training requirements (technician and drivers).
- Prior to unloading, customer provides:
  - Clean and clear access to injection area, including escape route
  - Firm, level surface to stage unloading equipment
  - Nitrogen, with regulated pressure
  - Grounding point
  - Work permit
  - Unloading area safety review, including area hazards, rally point, safe location, and safety shower/eyewash
- Provide injection procedure and instructions.
- Modify, if needed, working conditions during the sulfiding.

## ARKEMA'S RESPONSIBILITIES

- Review questionnaire and sulfiding preparations as designated by the customer.
- Deliver quantity of sulfiding agent as specified by the customer on the requested delivery date.
- Careflex® Service technician and drivers arrive at the customer's site.
- Provide equipment necessary for safe discharge:
  - Hoses/gaskets
  - Connections
  - Meter(s) - total gallons and gpm
- Follow sulfur injection procedure.
- Record quantities of injected product.
- Disconnect hosing and fittings.
- Issue Careflex® Service sulfiding report.



## H<sub>2</sub>S ANALYZING

To support customers in their safety initiatives and reduce the need for draeger readings, Arkema is pleased to introduce real-time H<sub>2</sub>S analyzing as an addition to our outstanding Careflex® service offerings!

By utilizing advanced UV analysis technology, our equipment delivers high accuracy, virtually zero lag, and quick calibration. Since a chemical reaction is not utilized, readings are instantaneous and there is no handling of hazardous waste.

Specs:

- Class 1, Div 2 Explosion Proof
- Connections: Range of fittings to meet needs
- Accuracy: +/- 0.004 AU
- Power Requirement: Standard 110V plug
- Outputs: On screen, 4-20mA DCS, web access (coming soon)

**When Arkema offers a service, rest assured you're getting the best available!**

## CARELFLEX® SERVICE HIGH PRESSURE PUMPING

Arkema is able to perform sulfiding without the use of additional pumping equipment for process pressures up to 200 psig. For jobs which call for pressures above this, we utilize our proprietary pumping skids to meet your needs.

Specs:

- Pressure Range: 200 – 2,500 psig
- Flow Rate: 0.3 – 20 gpm
- Pump Type: diaphragm (PD) w/variable speed drive
- Flow Meter: Coriolis Mass Flow
- Power Requirements: 480V, 60 Hz, 3 phase
- Connection: 1" RF flange
- Enclosure: Cage which is moveable by forklift or crane

Whether your job calls for gas or liquid phase injection, Arkema has you covered. And since our pumps operate with variable speed drives, the output pressure is determined by your process, eliminating the potential for an overpressure situation.

A global chemical company, Arkema combines three related and integrated business segments: High Performance Products, Industrial Specialties, and Coatings Solutions. Present in over 40 countries, with 14,000 employees and 91 production sites, Arkema had sales of \$8.3 billion USD in 2012. With its 10 research centers in France, the United States, and Japan, and internationally recognized brands, Arkema holds leadership positions in its principal markets.

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Before handling this material, read and understand the MSDS (Material Safety Data Sheet) for additional information on personal protective equipment and for safety, health and environmental information.

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INNOVATIVE CHEMISTRY

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