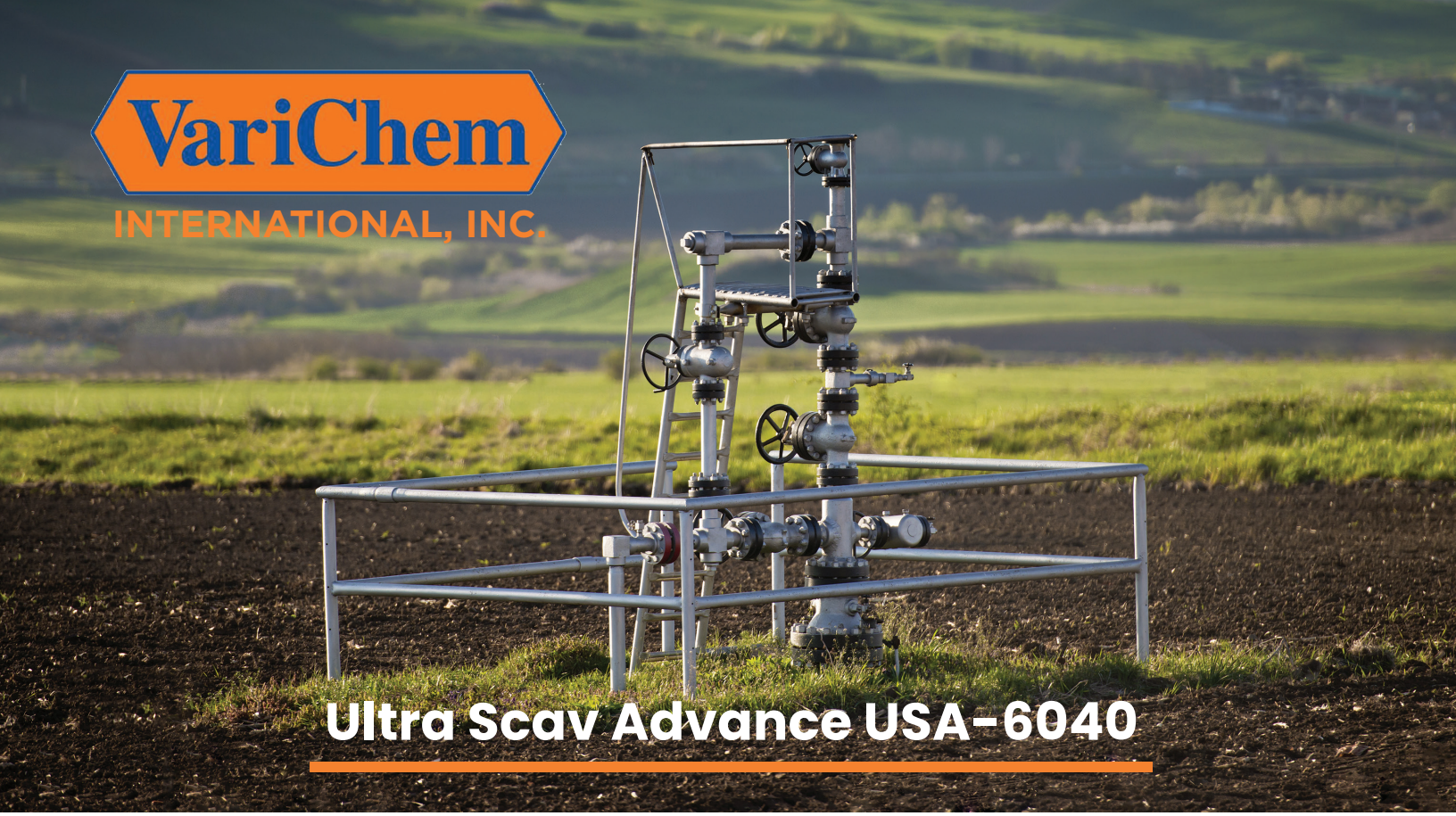
VariChem
INTERNATIONAL, INC.



Ultra Scav Advance USA-6040

Superior Hydrogen Sulfide Scavenger

"Ultra Scav Advance" has proven to be 10% – 15% more effective than standard MEA Triazines at a lower cost per gallon, generating significant savings, drastically reducing the chemical usage and carbon footprint of oil and gas production, and increasing profits for our customers."

Gordon Hill Winfrey
President
Varichem International Inc.

Field proven at between 10% and 15% more efficient than standard MEA Triazines, USA-6040 will deliver significant performance, environmental and economical benefits to our customers and the Oil and Gas Industry as a whole.

Benefits of Ultra Scav Advance

- Reduce chemicals used to scavenge H_2S.
- Does not precipitate solids, so no system clogging due to Dithiazine under normal operating conditions.
- Can be used in flowlines, pipelines, and towers.
- Ideal for midstream and refinery applications.
- Reduces the carbon footprint generated by H_2S treating operations.
- Reduced flaring of natural gas by reducing the cost of treatment to affordable levels.
- Can treat much higher levels of H_2S than standard MEA Triazines using lower cost direct injection.

How Ultra Scav Advance Differs from Traditional MEA Triazines

- Speed of reaction - Ultra Scav Advance can react with H_2S up to 5X faster.
- Significant reduction in required residence time in "Bubble Tower" applications.
- Up to half the chemical applied to do the same scavenging job.
- Can scavenge higher levels of H_2S extending the range of liquid H_2S scavengers using direct injection, saving operators millions of dollars in CAPEX and maintenance of expensive treatment towers.
- No solids precipitated, reducing toxic waste and cleanup/disposal costs.
- One gallon of MEA Triazine 40% active removes an average of .48 pounds of H_2S.
- One gallon of USA-6040 removes an average of .53 pounds of H_2S.

To be clear, Ultra Scav Advance is not MEA Triazine with the addition of another component serving as a booster or a catalyst for the MEA Triazine to work better. USA-6040 is indeed a different fully reacted product containing a proprietary, complex mixture of amine-based chemistry. It is safe to describe the product as having the same Health, Safety and Regulatory requirements of MEA Triazine. It can be described as a cross-out for MEA Triazine in terms of HS&E characteristics.

TYPICAL SPECIFICATION

PROPERTY	SPEC	TEST METHOD
Ultra Scav Content	15% - 80%	HPLC
Scale Inhibitor Content	0% wt.	HPLC
Methanol	<1% wt. or less	GC

TYPICAL PROPERTIES

PROPERTY	VALUE
Specific Gravity @ 25° C	1.01 to 1.25
Appearance	Clear to Amber Liquid
Pounds per Gallon @ 25° C	8.5 to 10.5
pH	9.5 TO 11.5

TEXAS CASE STUDY

LOCATION	NEAR COTULLA, SOUTH TEXAS
Gas Flow Rate	8.3 MMCF/D
Ave. Gas Temp.	85°F
H_2S Initial Gas Phase	40 PPM
Pipeline H_2S Level Spec	4 PPM
Incumbent Product	37% MEA Triazine with 2% SI
Incumbent Injection Rate	30 Gal/Day
Incumbent H_2S Level	2.0 PPM
Ultra Scav Advance Injection Rate	25 Gal/Day
Ultra Scav Advance H_2S Level	0.5 PPM

LOUISIANA CASE STUDY

LOCATION	NORTHERN LOUISIANA
Gas Flow Rate	1.5 MMCF/D
Operating Temp	160° F
H_2S Initial Gas Phase	350 PPM
Pipeline H_2S Level Spec	4 PPM
Incumbent Product	37% MEA Triazine with 2% SI
Incumbent Usage Rate	156 Gal/Day
Incumbent H_2S Level	4.0 PPM
Ultra Scav Advance Usage Rate	130 Gal/Day
Ultra Scav Advance H_2S Level	2 PPM

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