

NORIT® SILPURE SURFACE TREATED ACTIVATED CARBON FOR HIGH PERFORMANCE SILOXANE REMOVAL

NORIT SILPURE activated carbon provides high-efficiency siloxane removal resulting in extended equipment life, reduced operational costs, and enhanced gas processing due to a reduction of media changeouts.

Benefits

- ◆ Designed for high-performance removal of all species of siloxanes, including difficult to remove, low molecular weight compounds
- ◆ Lower siloxane levels allow processors to maintain equipment warranties and significantly reduce maintenance costs
- ◆ Proprietary technology preferentially adsorbs siloxanes for increased media life
- ◆ Significantly more efficient in siloxane removal vs. traditional activated carbons
- ◆ Requires less capital expenditures than multimedia solutions
- ◆ Removal capability meets grid and vehicle fuel requirements
- ◆ Ideally suited for gas limited sites, due to its high performance and freedom to operate without using high value biogas to regenerate

The challenge

Siloxanes are a group of man-made organic compounds used to produce personal hygiene, health care and industrial products. Widespread use of siloxanes has contributed to significant amounts of impurities found in wastewater and landfills. Even at levels of 0.5 PPM in raw biogas, siloxanes can cause significant damage, destruction, and reduced efficiency of engines, turbines, boilers, fuel cells, and catalysts. Siloxane damage leads to higher costs and can seriously impact biogas upgrading.

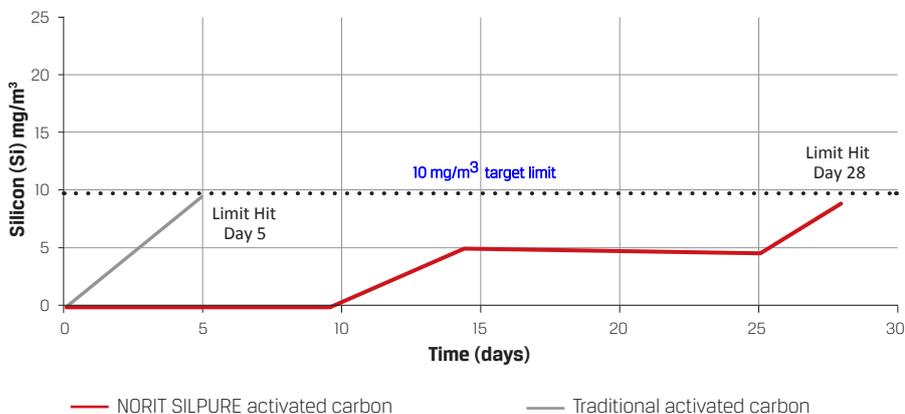
Our solution

NORIT SILPURE activated carbon uses proprietary technology to preferentially adsorb siloxanes over high BTU volatile organic compounds commonly found in biogas. This process increases loading capacity and improves gas purity resulting in lower maintenance costs, less frequent material change-outs, and increased gas processing capability.

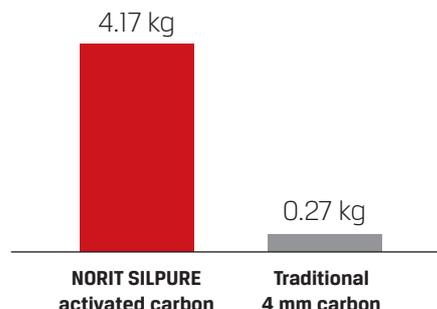


NORIT® SILPURE activated carbon's surface chemistry enables it to capture both large molecular weight siloxanes and difficult to remove small molecular weight siloxanes.

Field trial results from Suez's Packington Landfill in the United Kingdom



Kilograms of siloxanes adsorbed per metric ton of activated carbon



On an equal weight basis, NORIT SILPURE activated carbon removes 15x more siloxanes in the field

	NORIT SILPURE activated carbon			4 mm traditional activated carbon		
Total # of kg	720			3000		
	Raw gas	Adsorbed	% Adsorbed	Raw gas	Adsorbed	% Adsorbed
Siloxanes (kg)	5.8	3.0	52%	5.8	0.8	12%
H ₂ S (kg)	123	112	91%	123	25	22%

This data represents siloxane and H₂S adsorption in actual field test conditions at Suez's Packington Landfill in the United Kingdom. Siloxane removal under lab conditions should be considered carefully, as labs are typically not able to accurately mimic real biogas conditions due to the large number of competing compounds present in the gas stream including siloxanes, VOCs, H₂S and other sulfur species. The physical adsorption of siloxanes becomes significantly more difficult in the field due to competitive adsorption dynamics, which is why we designed NORIT SILPURE activated carbon to have a specific affinity for the removal of siloxanes.

Partnering with us

With over 150 different formulations, we are the world's largest and most experienced producer of activated carbon. Our history of innovation allows us to develop the right solution to meet each customer's application, ensuring better performance than "off the shelf" products. Our products are manufactured in ISO certified facilities and backed by a global network of sales, technical service, and customer support professionals. Contact us at cabotcorp.com/activatedcarboncontact



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