ST I X

Pelleted Impregnated Activated Carbon

Description

ST I X is a coal-based pelleted carbon designed for the removal of acid gases and odor compounds from air. It is manufactured by high-temperature steam activation followed by chemical impregnation. This carbon is a proven product for many odor control applications, including industrial processes, municipal treatment plants, paper plants, and indoor air filtration. It provides very high capacities for compounds that are not strongly adsorbed by standard carbon, including hydrogen sulfide (H_2S), mercaptans, sulfur dioxide, chlorine, and hydrogen chloride.

H_2S Capacity

Based on testing per ASTM D-6646, the H_2S capacity specification for ST I X is 0.14 g/cc, or about 25% by weight. The following plot can be used to estimate the rate of use of ST I X carbon as a function of air flow and H_2S concentration. For intermediate flow rates the usage can be estimated.

Advantages

Compared to other caustic impregnated carbons, ST I X has several advantages:

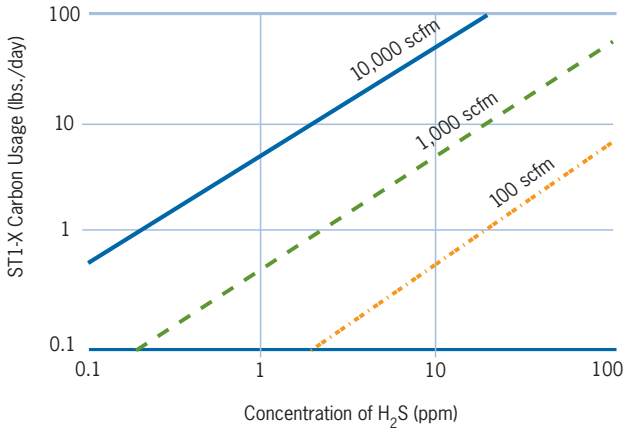
- Use of a pelleted carbon provides a lower pressure drop than granular carbons thereby reducing electrical costs
- Use of a coal-based pelleted ensures a high density product with good mechanical properties, producing a product that does not breakdown as readily as low density products
- ST I X is the most cost-effective caustic impregnated carbon available today for acid gas removal applications

Specifications	ST I X
CCl_4 by weight	60% (min)
Moisture by weight	15% (max)
H_2S Breakthrough Capacity	0.14 g H_2S/cc carbon (min)
Mean Particle Diameter	4 mm

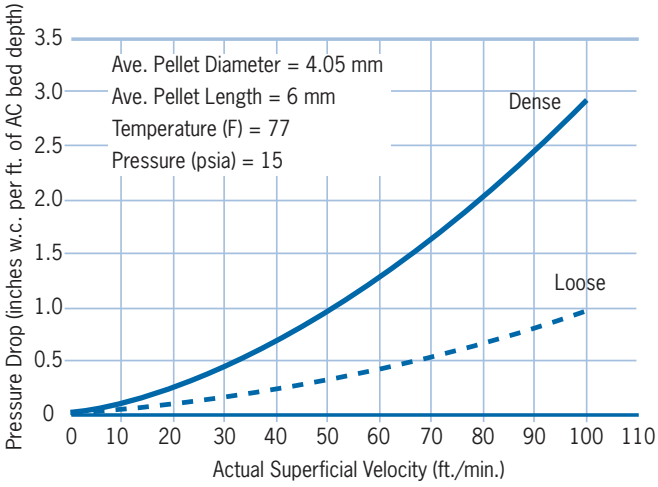
The impregnants on this carbon have been shown to decrease the ignition temperature of the carbon. This product passes the United Nations Self-heating Test and is, therefore, deemed suitable for shipment without concern over it self-heating. However, in some circumstances when the carbon is left open to air and low convective flow of air passes through it, the carbon can self-heat and ignite. Therefore, when a vessel containing carbon is out of service or in storage, care should be taken to prevent convective airflow which can be prevented with the installation of blind flanges on inlet and outlet connections.

Typical Properties	ST I X
Ash Content by weight	12%
Ball Pan Hardness	95 (min)

Estimated ST I X H_2S Breakthrough Capacity Usage



Pressure Drop of a Carbon Bed in an Odor Control Adsorber



Design Considerations

ST I X is applied in fixed-bed adsorbers operated in an upflow, downflow, or cross-flow mode. Bed depths typically range from 18 inches (46 cm) to 36 inches (92 cm) at superficial velocities between 50 to 90 feet per minute (0.25 m/s to 0.46 m/s). For effective H_2S control, the gas stream must contain free oxygen and the stream humidity must be in excess of 10%.

Since condensation of water on the carbon will reduce its performance, devices to prevent free condensation are recommended.

For applications where organic compounds (VOC's) must be removed in addition to H_2S, or where especially long carbon life is desired and potable water is available, Calgon Carbon Corporation recommends the use of its CENTAUR catalytic activated carbon in lieu of ST I X. CENTAUR can be regenerated in place for continued H_2S removal simply by washing the carbon with water. Ask your Calgon Carbon Corporation Technical Sales Representative for more information on this product.

Packaging

50 lb. bag

15 gal. fiber drum

55 gal. fiber drum

1,000 lb. super sack

1,100 lb. super sack

The impregnates on this carbon have been shown to decrease the ignition temperature of the carbon. This product passes the United Nations Self-heating Test (United Nations Transportation of Dangerous Goods, Manual of Tests and Criteria, Part III, Section 33.3.1.6 - Test N.4 - Test Method for Self Heating Substances) and is therefore deemed suitable for shipment without concern over it self-heating. However, in some applications when the carbon is left open to air and low convective flow of air passes through it, the carbon can self-heat and ignite. Therefore, when an adsorption vessel containing carbon is out of service or in storage, care should be taken to prevent convective airflow which can be prevented with the installation of blind flanges on inlet and outlet connections

Safety Message

Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed, including all applicable federal and state requirements. Please refer to the MSDS for all up to date product safety information.

Making Water and Air Safer and Cleaner

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