

SUGGESTED SPECIFICATIONS - DS-100

DRUM SCRUBBER - 100 CFM

For use with drawing 8001E



1. General

1.01 Intent

- A. It is the intent of these Suggested Specifications to give the Contractor/Engineer the descriptions of the equipment, instructions for delivery, and installation of the Purafil ESD Drum Scrubber-100 cfm (DS-100) as manufactured by Purafil, Inc. Doraville, Georgia or equal.
- B. The Contractor/Engineer is advised that all drawings shall be for general reference.
- C. The Contractor/Engineer shall provide all equipment and work indicated below unless otherwise noted and any additional work to produce a completely finished job as required by the Engineer.

2. PRODUCTS

2.01 General

- A. This specification defines the requirements for a Drum Scrubber-100 cfm (DS-100) as manufactured by Purafil, Inc. Atlanta, Georgia or equal.
- B. The DS-100 consists of dry-scrubbing media contained in a 55-gallon, linear, low density, polyethylene drum with a blower mounted on top of a FRP lid.
- C. The DS-100 shall contain five stages of dry-scrubbing media, 1 ft³/0.03 m³ of Odoroxidant (50 lbs/23 kg), 2 ft³/0.06 m³ of Odorcarb (90 lbs/41 kg), and 2 ft³/0.06 m³ of Odormix (80 lbs/36 kg) as manufactured by Purafil, Inc., unless otherwise specified. Each stage shall measure 1 ft³ (0.03 m³), weigh no more than 50 lbs (23 kg), and be contained in a MediaSAK.
- D. The DS-100 shall be designed to operate at 99.5+% gas removal efficiencies.
- E. The airflow capacity shall range from 99 cfm (168 m³/hr) at 1.3 IWG (324 Pa) with the damper half open to 117 cfm (199 m³/hr) at 2.0 IWG (498 Pa) with the damper fully opened.
- F. The configuration shall be arranged so that the contaminated air shall flow into the bottom inlet plenum and be drawn upwards through the media bed. Treated air shall discharge out the top of the vessel through a centrifugal air ventilator.
- G. All components of the DS-100 shall include:
 1. 55-gallon, low density, polyethylene drum and FRP lid
 2. 220 lbs of dry scrubbing media
 3. Polypropylene blower section with damper

2.02 Drum

- A. The drum material shall be linear, low density, polyethylene, 1/4" (6.4 mm) in thickness.
- B. The drum shall have a capacity of 55 gallons and measure 22" (559 mm) in diameter and 36" (914 mm) in height.
- C. Latches shall be stainless steel and rubber.
- D. Fasteners shall be stainless steel.
- E. The drum shall contain 5 ft³ of Odoroxidant, Odorcarb, and Odormix Media as manufactured by Purafil, Inc. Each stage shall measure one cubic foot and be contained in a MediaSAK.
- F. The media shall be supported by a system of thermoplastic packing to provide maximum diffusion.
- G. The inlet shall have a 4" (102 mm) FERNCO flexible coupling.
- H. The drum shall have a 0.75" (19 mm) diameter drain pipe.
- I. Polymedia filters shall be used to separate the packing from the Odoroxidant Media and the blower from the Odormix Media.

2.03 Blower Section

- A. The blower shall be sized to deliver 99 cfm (168 m³/hr) at 1.3 IWG (324 Pa) with the damper half open to 117 cfm (199 m³/hr) at 2.0 IWG (498 Pa) with the damper fully opened.
- B. The blower/motor shall be covered with an FRP rainhood.
- C. The blower shall consist of a direct drive motor-fan assembly
- D. The motor shall be a 1/2 hp, 3450 RPM, 115/230 volt / 1 phase/ 60 Hz TEFC motor.
- E. The motor shall be prewired with a 6 ft (1.8 m) grounded power cord.

2.04 Chemical Media

- A. The DS-100 shall contain 1 ft³ (0.03 m³) of Odoroxidant Media, 2 ft³ (0.06 m³) of Odorcarb Media, and 2 ft³ (0.06 m³) of Odormix Media in MediaSAKs as manufactured by Purafil, Inc.
- B. The physical properties of the MediaSAK are as follows:
 1. Construction Material: FRP screen with nylon thread

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2. Filter Medium: Odoroxidant, Odorcarb, or Odormix media
3. Filter Size: Approximately 22" (559 mm) in diameter and 4" (102 mm) in thickness when filled
- C. The Odoroxidant Media shall consist of manufactured, generally spherical, porous pellets. Pellets shall be formed from a combination of activated alumina and other binders, suitably impregnated with potassium permanganate to provide optimum adsorption, absorption, and oxidation of a wide variety of gaseous contaminants. The potassium permanganate shall be applied during pellet formation, such that the impregnant is uniformly distributed throughout the pellet volume and is totally available for reaction.
- D. Odoroxidant Media shall have the following physical properties:
 1. Moisture content: 35% maximum
 2. Average crush strength: 35% minimum - 70% maximum
 3. Average abrasion: 4.5% maximum
 4. Bulk density: 50 lbs/ft³ (800 kg/m³)
 5. Nominal pellet diameter: 1/8" (3.2 mm)
 6. Potassium permanganate content: 8% minimum
- E. Odoroxidant Media shall be UL Class 1 listed.
- F. Odoroxidant Media shall be capable of absorbing and removing odorous gases throughout the entire pellet.
- G. The Odorcarb Media shall consist of manufactured, generally spherical porous pellets. The pellets shall be formed from a combination of powdered activated carbon, alumina, and other binders suitably impregnated with chemicals to enhance the capacity for removal of odorous gases. The pellets shall also chemically react to produce solid reaction products within the media. Impregnants shall be applied during pellet formation such that the impregnant is uniformly distributed throughout the pellet volume.
- H. Odorcarb Media shall have the following physical properties:
 1. Moisture content: 35% maximum
 2. Average crush strength: 35% minimum - 70% maximum
 3. Average abrasion: 4.5% maximum
 4. Bulk density: 45 lbs/ft³ (721 kg/m³)
 5. Nominal pellet diameter: 1/16" (1.587 mm)
- I. Odorcarb Media shall be UL Class 2 listed.
- J. Odorcarb Media shall be capable of absorbing and removing odorous gases throughout the entire pellet.
- K. The Odormix Media shall consist of an equal mix (by volume) of Purafil ESD's Odoroxidant Media and Odorkol Media. Odoroxidant Media shall be manufactured of generally spherical, porous pellets formed from a combination of powdered activated alumina and other binders, suitably impregnated with potassium permanganate to provide optimum adsorption, absorption, and oxidation of a wide variety of gaseous contaminants. The potassium permanganate shall be applied during pellet formation, such as the impregnant is uniformly distributed throughout the pellet volume and is totally available for reaction. Odorkol Media shall be a premium grade, activated carbon with a high surface area available for adsorption.
- L. Odormix Media shall have the following physical properties:
 1. Odoroxidant Media
 - Moisture content: 35% maximum
 - Average crush strength: 35% minimum - 70% maximum
 - Average abrasion: 4.5% maximum
 - Bulk density: 50 lbs/ft³ (800 kg/m³)
 - Nominal pellet diameter: 1/8" (3.2 mm)
 - Potassium permanganate content: 8% minimum
 2. Odorkol Media
 - Moisture content: 5.0% maximum
 - CTC: 55 minimum
 - Base material: activated carbon
 - Bulk density: 30-32 lbs/ft³ (480-512 kg/m³)
 3. Odormix Media shall be UL Class 1 listed and have a bulk density of 50 lbs per cubic foot.

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3. MANUFACTURER

3.01 Purafil, Inc.

- A. The manufacturer shall have a minimum of ten years experience in the design, fabrication, and testing of systems that are 99.5+% efficient at removing gaseous contaminants.
- B. The manufacturer shall be a single source provider of equipment, media, and testing services and be certified to ISO-9001 standards.
- C. The manufacturer shall have local, factory-trained representatives.
- D. The manufacturer shall be Purafil, Inc. of Doraville, Georgia.