

repeated links, each link being a relatively light and simple molecule.

*Precipitation bath* means the water, solvent, or other chemical bath into which the polymer or prepolymer (partially reacted material) solution is extruded, and that causes physical or chemical changes to occur in the extruded solution to result in a semihardened polymeric fiber.

*Rayon fiber* means a manufactured fiber composed of regenerated cellulose, as well as manufactured fibers composed of regenerated cellulose in which substituents have replaced not more than 15 percent of the hydrogens of the hydroxyl groups.

*Reaction spinning process* means the fiber-forming process where a prepolymer is extruded into a fluid medium and solidification takes place by chemical reaction to form the final polymeric material.

*Recovered solvent* means the solvent captured from liquid and gaseous process streams that is concentrated in a control device and that may be purified for reuse.

*Solvent feed* means the solvent introduced into the spinning solution preparation system or precipitation bath. This feed stream includes the combination of recovered solvent and makeup solvent.

*Solvent inventory variation* means the normal changes in the total amount of solvent contained in the affected facility.

*Solvent recovery system* means the equipment associated with capture, transportation, collection, concentration, and purification of organic solvents. It may include enclosures, hoods, ducting, piping, scrubbers, condensers, carbon adsorbers, distillation equipment, and associated storage vessels.

*Solvent-spun synthetic fiber* means any synthetic fiber produced by a process that uses an organic solvent in the spinning solution, the precipitation bath, or processing of the spun fiber.

*Solvent-spun synthetic fiber process* means the total of all equipment having a common spinning solution preparation system or a common solvent recovery system, and that is used in the manufacture of solvent-spun synthetic fiber. It includes spinning solution

preparation, spinning, fiber processing and solvent recovery, but does not include the polymer production equipment.

*Spandex fiber* means a manufactured fiber in which the fiber-forming substance is a long chain synthetic polymer comprised of at least 85 percent of a segmented polyurethane.

*Spinning solution* means the mixture of polymer, prepolymer, or copolymer and additives dissolved in solvent. The solution is prepared at a viscosity and solvent-to-polymer ratio that is suitable for extrusion into fibers.

*Spinning solution preparation system* means the equipment used to prepare spinning solutions; the system includes equipment for mixing, filtering, blending, and storage of the spinning solutions.

*Synthetic fiber* means any fiber composed partially or entirely of materials made by chemical synthesis, or made partially or entirely from chemically-modified naturally-occurring materials.

*Viscose process* means the fiber forming process where cellulose and concentrated caustic soda are reacted to form soda or alkali cellulose. This reacts with carbon disulfide to form sodium cellulose xanthate, which is then dissolved in a solution of caustic soda. After ripening, the solution is spun into an acid coagulating bath. This precipitates the cellulose in the form of a regenerated cellulose filament.

[49 FR 13651, Apr. 5, 1984; 49 FR 18096, Apr. 27, 1984]

#### **§ 60.602 Standard for volatile organic compounds.**

On and after the date on which the initial performance test required to be conducted by § 60.8 is completed, no owner or operator subject to the provisions of this subpart shall cause the discharge into the atmosphere from any affected facility that produces acrylic fibers, VOC emissions that exceed 10 kg/Mg (20 lb/ton) solvent feed to the spinning solution preparation system or precipitation bath. VOC emissions from affected facilities that produce both acrylic and nonacrylic fiber types shall not exceed 10 kg/Mg (20 lb/ton) solvent feed. VOC emissions from affected facilities that produce

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only nonacrylic fiber types shall not exceed 17 kg/Mg (34 lb/ton) solvent feed. Compliance with the emission limitations is determined on a 6-month rolling average basis as described in § 60.603.

[49 FR 22606, May 30, 1984, as amended at 65 FR 61768, Oct. 17, 2000]

**§ 60.603 Performance test and compliance provisions.**

(a) Section 60.8(f) does not apply to the performance test procedures required by this subpart.

(b) Each owner or operator of an affected facility shall determine compliance with the applicable standard in § 60.602(a) by determining and recording monthly the VOC emissions per unit mass solvent feed from each affected facility for the current and preceding 5 consecutive calendar months and using these values to calculate the 6-month average emissions. Each calculation is considered a performance test. The owner or operator of an affected facility shall use the following procedure to determine VOC emissions for each calendar month:

(1) Install, calibrate, maintain, and operate monitoring devices that continuously measure and permanently record for each calendar month the amount of makeup solvent and solvent feed. These values shall be used in calculating VOC emissions according to paragraph (b)(2) of this section. All monitoring devices, meters, and peripheral equipment shall be calibrated and any error recorded. Total compounded error of the flow measuring and recording devices shall not exceed 1 percent accuracy over the operating range. As an alternative to measuring solvent feed, the owner or operator may:

(i) Measure the amount of recovered solvent returned to the solvent feed storage tanks, and use the following equation to determine the amount of solvent feed:

$$\text{Solvent Feed} = \text{Makeup Solvent} + \text{Recovered Solvent} + \text{Change in the Amount of Solvent Contained in the Solvent Feed Holding Tank.}$$

(ii) Measure and record the amount of polymer introduced into the affected facility and the solvent-to-polymer ratio of the spinning solutions, and use

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the following equation to determine the amount of solvent feed:

$$\text{Solvent Feed} = \sum_{i=1}^n$$

where subscript “i” denotes each particular spinning solution used during the test period; values of “i” vary from one to the total number of spinning solutions, “n,” used during the calendar month.

(2) VOC emissions shall be determined each calendar month by use of the following equations:

$$E = \frac{M_w}{S_w} - N - I \text{ and } M_w = M_v S_p D$$

$$S_w = \frac{S_v S_p D}{K}$$

$$I = \frac{I_E - I_S}{S_w}$$

where all values are for the calendar month only and where

E = VOC Emissions, in kg/Mg (lb/ton) solvent;

S<sub>v</sub> = Measured or calculated volume of solvent feed, in liters (gallons);

S<sub>w</sub> = Weight of solvent feed, in Mg (ton);

M<sub>v</sub> = Measured volume of makeup solvent, in liters (gallons);

M<sub>w</sub> = Weight of makeup, in kg (lb);

N = Allowance for nongaseous losses, 13 kg/Mg (26 lb/ton) solvent feed;

S<sub>p</sub> = Fraction of measured volume that is actual solvent (excludes water);

D = Density of the solvent, in kg/liter (lb/gallon);

K = Conversion factor, 1,000 kg/Mg (2,000 lb/ton);

I = Allowance for solvent inventory variation or changes in the amount of solvent contained in the affected facility, in kg/Mg (lb/ton) solvent feed (may be positive or negative);

I<sub>s</sub> = Amount of solvent contained in the affected facility at the beginning of the test period, as determined by the owner or operator, in kg (lb);

I<sub>E</sub> = Amount of solvent contained in the affected facility at the close of the test period, as determined by the owner or operator, in kg (lb).

(3) N, as used in the equation in paragraph (b)(2) of this section, equals 13 kg/Mg (26 lb/ton) solvent feed to the spinning solution preparation system and precipitation bath. This value shall be used in all cases unless an owner or