

Subpart DDD—Standards of Performance for Volatile Organic Compound (VOC) Emissions from the Polymer Manufacturing Industry

SOURCE: 55 FR 51035, Dec. 11, 1990, unless otherwise noted.

§ 60.560 Applicability and designation of affected facilities.

(a) *Affected facilities.* The provisions of this subpart apply to affected facilities involved in the manufacture of polypropylene, polyethylene, polystyrene, or poly(ethylene terephthalate) as defined in § 60.561 of this subpart. The affected facilities designated below for polypropylene and polyethylene are inclusive of all equipment used in the manufacture of these polymers, beginning with raw materials preparation and ending with product storage, and cover all emissions emanating from such equipment.

(1) For process emissions from any polypropylene and polyethylene manufacturing process that uses a continuous process, the affected facilities are each of the following process sections: each raw materials preparation section, each polymerization reaction section, each material recovery section, each product finishing section, and each product storage section. These process sections are affected facilities for process emissions that are emitted continuously and for process emissions that are emitted intermittently.

(2) For process emissions from polystyrene manufacturing processes that use a continuous process, the affected facilities are each material recovery section. These process sections are affected facilities for only those process emissions that are emitted continuously.

(3) For process emissions from poly(ethylene terephthalate) manufacturing processes that use a continuous process, the affected facilities are each polymerization reaction section. If the process uses dimethyl terephthalate, then each material recovery section is also an affected facility. If the process uses terephthalic acid, then each raw materials preparation section is also an affected facility. These process sec-

tions are affected facilities for only those process emissions that are emitted continuously.

(4) For VOC emissions from equipment leaks from polypropylene, polyethylene, and polystyrene (including expandable polystyrene) manufacturing processes, the affected facilities are each group of fugitive emissions equipment (as defined in § 60.561) within any process unit (as defined in § 60.561). This subpart does not apply to VOC emissions from equipment leaks from poly(ethylene terephthalate) manufacturing processes.

(i) Affected facilities with a design capacity to produce less than 1,000 Mg/yr (1,102 ton/yr) shall be exempt from § 60.562-2.

(ii) Addition or replacement of equipment for the purposes of improvement which is accomplished without a capital expenditure shall not by itself be considered a modification under § 60.562-2.

(b) *Applicability dates.* The applicability date identifies when an affected facility becomes subject to a standard. Usually, a standard has a single applicability date. However, some polypropylene and polyethylene affected facilities have a September 30, 1987, applicability date and others have a January 10, 1989, applicability date. The following paragraphs identify the applicability dates for all affected facilities subject to this subpart.

(1) *Polypropylene and polyethylene.* Each process section in a polypropylene or polyethylene production process is a potential affected facility for both continuous and intermittent emissions. The applicability date depends on when the process section was constructed, modified, or reconstructed and, in some instances, on the type of production process.

(i) The applicability date for any polypropylene or polyethylene affected facility that is constructed, modified, or reconstructed after January 10, 1989, regardless of the type of production process being used, is January 10, 1989.

(ii) Only some polypropylene or polyethylene process sections that are constructed, modified, or reconstructed on or before January 10, 1989, but after September 30, 1987, are affected facilities. These process sections (and the

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type of emissions to be controlled) are identified by an "x" in Table 1. The applicability date for the process sections (and the emissions to be controlled) that are identified by an "x" in Table 1 is September 30, 1987. Since the affected facilities that have a September

30, 1987, applicability date are determined by the type of production process (e.g., liquid phase, gas phase), each owner or operator shall identify the particular production process that applies to his or her particular process.

Polymer	Production process(es)	Process section	Emissions	
			Continuous	Intermittent
Polypropylene	Liquid Phase	Raw Materials Preparation	X	
		Polymerization Reaction	X	
		Material Recovery	X	X
		Product Finishing	X	
		Product Storage		
Polypropylene	Gas Phase	Raw Materials Preparation		
		Polymerization Reaction		X
		Material Recovery	X	
		Product Finishing		
		Product Storage		
Low Density Polyethylene	High Pressure	Raw Materials Preparation		X
		Polymerization Reaction		X
		Material Recovery		X
		Product Finishing		X
		Product Storage		X
Low Density Polyethylene	Low Pressure	Raw Materials Preparation	X	X
		Polymerization Reaction		X
High Density Polyethylene	Gas Phase	Raw Materials Preparation		
		Polymerization Reaction		
		Material Recovery		
		Product Finishing	X	
		Product Storage		
High Density Polyethylene	Liquid Phase Slurry ...	Raw Materials Preparation		X
		Polymerization Reaction		
		Material Recovery	X	
		Product Finishing	X	
		Product Storage		
High Density Polyethylene	Liquid Phase Solution	Raw Materials Preparation	X	X
		Polymerization Reaction		X
		Material Recovery	X	X
		Product Finishing		
		Product Storage		

(2) *Polystyrene*. The applicability date for each polystyrene affected facility is September 30, 1987.

(3) *Poly(ethylene terephthalate)*. The applicability date for each poly(ethylene terephthalate) affected facility is September 30, 1987.

(c) Any facility under paragraph (a) of this section that commences construction, modification, or reconstruction after its applicability date as identified under paragraph (b) of this section is subject to the requirements of this subpart, except as provided in paragraphs (d) through (f) of this section.

(d) Any polypropylene or polyethylene affected facility with a Sep-

tember 30, 1987, applicability date that commenced construction, modification, or reconstruction after September 30, 1987, and on or before January 10, 1989, with an uncontrolled emission rate (as defined in footnote a to Table 2) at or below those identified in Table 2 is not subject to the requirements of § 60.562-1 unless and until its uncontrolled emission rate exceeds that rate listed for it in Table 2 or it is modified or reconstructed after January 10, 1989. At such time, such facility becomes subject to § 60.562-1 and the procedures identified in § 60.562-1(a) shall be used to determine the control of emissions from the facility.

TABLE 2—MAXIMUM UNCONTROLLED THRESHOLD EMISSION RATES^a

Production process	Process section	Uncontrolled emission rate, kg TOC/Mg product (See associated footnote)
Polypropylene, liquid phase process	Raw Materials Preparation	0.15 ^b
	Polymerization Reaction	0.14 ^b , 0.24 ^c
	Material Recovery	0.19 ^b
Polypropylene, gas phase process	Product Finishing	1.57 ^b
	Polymerization Reaction	0.12 ^c
	Material Recovery	0.02 ^b
Low Density Polyethylene, low pressure process	Raw Materials Preparation	0.41 ^d
	Polymerization Reaction	(e)
	Material Recovery	(e)
	Product Finishing	(e)
Low Density Polyethylene, low pressure process	Product Storage	(e)
	Raw Materials Preparation	0.05 ^f
	Polymerization Reaction	0.03 ^g
	Product Finishing	0.01 ^b
High Density Polyethylene, liquid phase slurry process.	Raw Materials Preparation	0.25 ^c
	Material Recovery	0.11 ^b
	Product Finishing	0.41 ^b
High Density Polyethylene, liquid phase solution process.	Raw Materials Preparation	0.24 ^f
	Polymerization Reaction	0.16 ^c
High Density Polyethylene, gas phase process	Material Recovery	1.68 ^f
	Raw Materials Preparation	0.05 ^f
	Polymerization Reaction	0.03 ^g
	Product Finishing	0.01 ^b
Polystyrene, continuous process	Material Recovery	0.05 ^{h,h}
Poly(ethylene terephthalate), dimethyl terephthalate process.	Material Recovery	0.12 ^{h,h}
	Polymerization Reaction	1.80 ^{h,i,j}
Poly(ethylene terephthalate), terephthalic acid process.	Raw Materials Preparation	(l)
	Polymerization Reaction	1.80 ^{h,j,m}
		3.92 ^{h,k,m}

^a“Uncontrolled emission rate” refers to the emission rate of a vent stream that vents directly to the atmosphere and to the emission rate of a vent stream to the atmosphere that would occur in the absence of any add-on control devices but after any material recovery devices that constitute part of the normal material recovery operations in a process line where potential emissions are recovered for recycle or resale.

- ^b Emission rate applies to continuous emissions only.
- ^c Emission rate applies to intermittent emissions only.
- ^d Total emission rate for non-emergency intermittent emissions from raw materials preparation, polymerization reaction, material recovery, product finishing, and product storage process sections.
- ^e See footnote d.
- ^f Emission rate applies to both continuous and intermittent emissions.
- ^g Emission rate applies to non-emergency intermittent emissions only.
- ^h Applies to modified or reconstructed affected facilities only.
- ⁱ Includes emissions from the cooling water tower.
- ^j Applies to a process line producing low viscosity poly(ethylene terephthalate).
- ^k Applies to a process line producing high viscosity poly(ethylene terephthalate).
- ^l See footnote m.
- ^m Applies to the sum of emissions to the atmosphere from the polymerization reaction section (including emissions from the cooling tower) and the raw materials preparation section (i.e., the esterifiers).

(e)(1) Modified or reconstructed affected facilities at polystyrene and poly(ethylene terephthalate) plants with uncontrolled emission rates at or below those identified in Table 2 are exempt from the requirements of §60.562-1 unless and until its uncontrolled emission rate exceeds that rate listed for it in Table 2. This exemption does not apply to new polystyrene or poly(ethylene terephthalate) affected facilities.

(2) Emissions from modified or reconstructed affected facilities that are controlled by an existing control device and that have uncontrolled emission rates greater than the uncontrolled threshold emission rates identified in Table 2 are exempt from the requirements of §60.562-1 unless and until the existing control device is modified, reconstructed, or replaced.

(f) No process section of an experimental process line is considered an affected facility for continuous or intermittent process emissions.

(g) Individual vent streams that emit continuous emissions with uncontrolled annual emissions of less than 1.6 Mg/yr (1.76 ton/yr) or with a weight percent TOC of less than 0.10 percent from a new, modified, or reconstructed polypropylene or polyethylene affected facility are exempt from the requirements of § 60.562-1(a)(1). If at a later date, an individual stream's uncontrolled annual emissions become 1.6 Mg/yr (1.76 ton/yr) or greater (if the stream was exempted on the basis of the uncontrolled annual emissions exemption) or VOC concentration becomes 0.10 weight percent or higher (if the stream was exempted on the basis of the VOC concentration exemption), then the stream is subject to the requirements of § 60.562-1.

(h) Emergency vent streams, as defined in § 60.561, from a new, modified, or reconstructed polypropylene or polyethylene affected facility are exempt from the requirements of § 60.562-1(a)(2).

(i) An owner or operator of a polypropylene or polyethylene affected facility that commenced construction, modification, or reconstruction after September 30, 1987, and on or before January 10, 1989, and that is in a process line in which more than one type of polyolefin (i.e., polypropylene, low density polyethylene, high density polyethylene, or their copolymers) is produced shall select one of the polymer/production process combinations in Table 1 for purposes of determining applicable affected facilities and uncontrolled threshold emissions rates.

(j) *Alternative means of compliance*—(1) *Option to comply with part 65.* Owners or operators may choose to comply with 40 CFR part 65, subpart G, for continuous process vents that are subject to this subpart, that choose to comply with § 60.562-1(a)(1)(i)(A), (B), or (C) as allowed in § 60.562-1(a)(1) and (b)(1)(iii). The requirements of 40 CFR part 65, subpart G, satisfy the requirements of paragraph (c) of this section and §§ 60.563 through 60.566, except for § 60.565(g)(1). Other provisions applying to owners or operators who choose to

comply with 40 CFR part 65 are provided in 40 CFR 65.1.

(2) *Part 60, subpart A.* Owners or operators who choose to comply with 40 CFR part 65, subpart G, must also comply with §§ 60.1, 60.2, 60.5, 60.6, 60.7(a)(1) and (4), 60.14, 60.15, and 60.16 for those process vents. All sections and paragraphs of subpart A of this part that are not mentioned in this paragraph (j)(2) do not apply to owners or operators of process vents complying with 40 CFR part 65, subpart G, except that provisions required to be met prior to implementing 40 CFR part 65 still apply. Owners and operators who choose to comply with 40 CFR part 65, subpart G, must comply with 40 CFR part 65, subpart A.

(3) *Initial startup notification.* Each owner or operator subject to the provisions of this subpart that chooses to comply with 40 CFR part 65, subpart G, at initial startup shall notify the Administrator of the specific provisions of 40 CFR part 65, subpart G, with which the owner or operator has elected to comply. Notification shall be submitted with the notification of initial startup required by 40 CFR 65.5(b).

(NOTE: The numerical emission limits in these standards are expressed in terms of total organic compounds, measured as total organic compounds less methane and ethane.)

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§ 60.561 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act, in subpart A of part 60, or in subpart VV of part 60, and the following terms shall have the specific meanings given them.

Boiler means any enclosed combustion device that extracts useful energy in the form of steam.

Capital expenditure means, in addition to the definition in 40 CFR 60.2, an expenditure for a physical or operational change to an existing facility that exceeds P, the product of the facility's replacement cost, R, and an adjusted annual asset guideline repair allowance, A, as reflected by the following equation: $P = R \times A$, where