

## Chapter NR 276

## PHOSPHATE MANUFACTURING

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**NR 276.01 Purpose.** The purpose of this chapter is to establish effluent limitations, standards of performance, and pretreatment standards for discharges of process wastes from the phosphate manufacturing category of point sources and subcategories thereof.

**Note:** The authority for promulgation of this chapter is set forth in Wis. Adm. Code chapter NR 205.

**History:** Cr. Register, June 1976, No. 246, eff. 7-1-76.

**NR 276.02 Applicability.** The effluent limitations, standards of performance, pretreatment standards, and other provisions in this chapter are applicable to pollutants or pollutant properties in discharges of process waste resulting from manufacture in any of the following subcategories.

- (1) Phosphorus production
- (2) Phosphorus consuming
- (3) Phosphate
- (4) Defluorinated phosphate rock,
- (5) Defluorinated phosphoric acid, and
- (6) Sodium phosphates.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.03 Definitions.** The following definitions are applicable to terms used in this chapter. Definitions of other terms and meanings of abbreviations are set forth in Wis. Adm. Code chapter NR 205.

- (1) "Phosphorus production" means the manufacture of phosphorus and ferrophosphorus by smelting phosphate ore.
- (2) "Phosphorus consuming" means the manufacture from elemental phosphorus of phosphoric acid and phosphorus pentoxide, pentasulfide, trichloride, and oxychloride.
- (3) "Phosphate" means the manufacture from phosphoric acid of sodium tripolyphosphate, animal feed grade calcium phosphate, and human food grade calcium phosphate.

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(4) "Defluorinated phosphate rock" means the production of phosphate rock defluorinated by the use of high temperature, wet process phosphoric acid, silica, and other reagents.

(5) "Defluorinated phosphoric acid" means wet process phosphoric acid defluorinated by application of heat and other processing aids (such as vacuum and air stripping) and concentrated to 70-73 percent P<sub>2</sub>O<sub>5</sub>.

(6) "Sodium phosphates" means the manufacture of sodium phosphates from wet process phosphoric acid.

(7) "Within the impoundment" means;

(a) For impoundments constructed prior to January 27, 1975, within the water surface area at maximum capacity plus that portion, not to exceed 30 percent of such water surface area, of the surface area of the inside and outside slopes of the impoundment dam and extending to any immediately adjacent seepage ditch from which rain water is returned to the impoundment, and

(b) For new impoundments the water surface area at maximum capacity.

(8) "Pond water surface area" means the water area at the average operating level for the month but not less than one third of the water area at maximum capacity.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.04 Compliance with effluent limitations and standards.** Discharge of pollutants from facilities subject to the provisions of this chapter shall not exceed, as appropriate:

(1) By July 1, 1977 effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available;

(2) By July 1, 1977 pretreatment standards for existing discharges to publicly owned treatment works;

(3) By July 1, 1983 effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable;

(4) Standards of performance for new sources; or

(5) Pretreatment standards for new sources discharging to publicly owned treatment works.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.05 Modification of effluent limitations.** (1) Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available may be modified in accordance with this section.

(2) An individual discharger or other interested person may submit evidence to the department that factors relating to the equipment or facilities involved, the process applied, or other such factors related to such discharger are fundamentally different from the factors considered in the establishment of the effluent limitations. On the basis of

such evidence or other available information the department will make a written determination that such factors are or are not fundamentally different for that facility compared to those specified in the Phosphorus Derived Chemicals Development Document, EPA 440/1-74-006-a published January, 1974. If such fundamentally different factors are found to exist, the department shall establish for the discharge effluent limitations in the WPDES permit either more or less stringent than the limitations in this chapter, to the extent dictated by such fundamentally different factors. Such limitations must be approved by EPA which may approve, disapprove, or specify other limitations. Copies of this Development Document are available for inspection at the office of the department of natural resources, the secretary of state's office, and the office of the revisor of statutes, and may be obtained for personal use from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20460.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.06 Application of effluent limitations and standards**

(1) The effluent limitations and standards set forth in this chapter shall be used in accordance with this section to establish the quantity or quality of pollutants or pollutant properties which may be discharged by a point source subject to the provisions of this chapter, except as;

(a) They may be modified in accordance with section NR 276.05,

(b) They may be superseded by more stringent limitations and standards necessary to achieve water quality standards or meet other legal requirements, or

(c) They may be supplemented or superseded by standards or prohibitions for toxic pollutants or by additional limitations for other pollutants required to achieve water quality.

(2) The production basis for application of the limitations and standards set forth in this chapter shall be the daily average of a maximum month in each subcategory subject to the provisions of this chapter.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.07 Discharges from impoundments.** (1) A process wastewater impoundment which is designed, constructed and operated so as to contain the precipitation from the 10 year, 24 hour rainfall event for the area in which such impoundment is located may discharge that volume of process wastewater which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to such rainfall event when it occurs.

(2) A process wastewater impoundment which is designed, constructed and operated so as to contain the precipitation from the 25 year, 24 hour rainfall event for the area in which such impoundment is located may discharge that volume of process wastewater which is equivalent to the volume of precipitation that falls within the impoundment in excess of that attributable to such rainfall event when it occurs.

(3) During any calendar month, there may be discharged from a process wastewater impoundment a volume of process wastewater

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equal to the difference between the precipitation for that month which falls within the impoundment and the evaporation from the pond water surface area for that month. Such discharges shall have a pH within the range of 6.0-9.0, daily average concentrations not to exceed 35, 10, and 25 mg/1 respectively of total phosphorus, fluoride, and suspended solids, and daily maximum concentrations not to exceed 70, 30, and 50 mg/1 respectively.

(4) The 10 year and 25 year, 24 hour rainfall events for the impoundment location shall be as set forth in Wis. Adm. Code section NR 205.05.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.10 Effluent limitations, best practicable treatment.** The following effluent limitations for all or specific subcategories establish, except as provided in sections NR 276.05 and 276.06, the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility subject to the provisions of this chapter after application to process wastes of the best practicable control technology currently available.

(1) There shall be no discharge resulting from the manufacture of sodium tripolyphosphate or animal feed grade calcium phosphate in the phosphate subcategory.

(2) There shall be no discharge resulting from manufacture in subcategories (4) and (5) except in accordance with sections NR 276.07(1) and (3).

(3) The pH of all discharges shall be within the range of 6.0 to 9.0.

(4) For discharges from subcategories (1), (2) and (6) and human food grade calcium phosphate in subcategory (3), the 30-day average limitations for suspended solids and other parameters are set forth in table 1 in lbs/1000 lbs. or kg/1000 kg, of product. Daily maximum limitations are twice the 30-day average limitations, except for elemental phosphorus.

TABLE 1  
BPT EFFLUENT LIMITATIONS

| Subcategory* | Susp. Solids | Total Phosphorus | Fluoride | Arsenic | Elemental Phosphorus   |
|--------------|--------------|------------------|----------|---------|------------------------|
| (1)          | 0.5          | 0.15             | 0.05     |         | No detectable quantity |
| (2)          | 0.7          | 0.8              |          | .00005  | No detectable quantity |
| (3)**        | 0.06         | 0.03             |          |         |                        |
| (6)          | 0.25         | 0.40             | 0.15     |         |                        |

\* As identified in section NR 276.02

\*\* Human food grade calcium phosphate only.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.11 Effluent limitations, best available treatment.** The following effluent limitations for all or specific subcategories establish except as provided in section NR 276.06 the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility subject to the provisions of this chapter after application to process wastes of the best available technology economically achievable.

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(1) There shall be no discharge of wastes from facilities in subcategories (1), (2), and (3).

(2) There shall be no discharge of waste from facilities in subcategories (4) and (5) except in accordance with sections NR 276.07 (2) and (3).

(3) For discharges from facilities in subcategory (6) the pH shall be within the range of 6.0-9.0 and the quantities of suspended solids, total phosphorus, and fluoride shall not exceed daily averages of respectively 0.18, 0.28, and 0.11 lbs/1000 lbs or kg/1000 kg of product nor corresponding daily maxima of 0.35, 0.56, and 0.21.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.12 Standards of performance.** The following effluent limitations for specific subcategories establish except as provided in section NR 276.06 the quantity or quality of pollutants or pollutant properties which may be discharged to surface waters by a facility which is a new source subject to the provisions of this chapter.

(1) There shall be no discharge of wastes from facilities in subcategories (1), (2), and (3).

(2) There shall be no discharge of wastes from facilities in subcategories (4) and (5) except in accordance with sections NR 276.07 (2) and (3).

(3) Discharges from facilities in subcategory (6) shall be limited in accordance with section NR 276.11 (3).

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.13 Pretreatment standards for new sources.** (1) The pretreatment standards for discharges to publicly owned treatment works from new sources in subcategories (1), (2), and (3) shall be those set forth in section NR 276.12.

(2) The pretreatment standards for discharges to publicly owned treatment works from new sources in subcategories (4) and (5) shall be as set forth in Wis. Adm. Code chapter NR 211. In addition the volume of discharge shall be limited in accordance with sections NR 276.07 (1) and (3) and total phosphorus and fluoride shall not exceed respectively concentrations of 35 and 15 mg/1 on a daily average basis nor 70 and 30 mg/1 on a daily maximum basis. Wastewaters from such new sources may not be discharged to publicly owned treatment works except in compliance with this section.

(3) The pretreatment standards for discharges to publicly owned treatment works from new sources in subcategory (6) shall be as set forth in Wis. Adm. Code chapter NR 211 and in addition total phosphorus and fluoride in such discharge shall not exceed respectively 0.40 and 0.15 lbs/1000 lbs or kg/1000 kg of product on a daily average basis nor 0.80 and 0.30 lbs/1000 lbs or kg/1000 kg on a daily maximum basis.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.

**NR 276.14 Pretreatment standards for existing sources.** (1) The pretreatment standards for discharges to publicly owned treatment works from existing sources in subcategories (1), (2), (3), and

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(6) shall be as set forth in Wis. Adm. Code chapter NR 211. In addition the limitations for incompatible pollutants for specific subcategories shall be those set forth in section NR 276.10. Wastewaters from such new sources may not be discharged to publicly owned treatment works except in compliance with this section.

(2) The pretreatment standards for discharges to publicly owned treatment works from new sources in subcategories (4) and (5) shall be as set forth in Wis. Adm. Code chapter NR 211. In addition the volume of discharge shall be limited in accordance with sections NR 276.07 (1) and (3) and total phosphorus and fluoride shall not exceed respectively 0.40 and 0.15 lbs/1000 lbs or kg/1000 kg of product on a daily average basis nor 70 and 30 lbs/1000 lbs or kg/1000 kg on a daily maximum basis.

**History:** Cr. Register, June, 1976, No. 246, eff. 7-1-76.