

New Basis, Inc.
2626 Kansas Ave.
Riverside, CA 92507
ID: 40806

EQUIPMENT DESCRIPTION

A/N 476311:

MIXER, POLYESTER RESIN, SHAR SYSTEMS, MODEL NO. D-258NZ, 182 GALLON, WITH THREE HOPPERS, 4' X 4'-4" X 4'-4" EACH, AND ONE 25 HP MOTOR.

A/N 484033:

AIR POLLUTION CONTROL SYSTEM CONSISTING OF:

1. DUST COLLECTOR, DONALDSON TORIT, MODEL NO. VS-1200, PULSE JET CLEANING, WITH ONE 17" DIA. X 20" L. CARTRIDGE-TYPE FILTER, 135 SQ. FT. TOTAL FILTER AREA, AND ONE 24" X 18" X 12" HEPA FILTER.
2. EXHAUST SYSTEM WITH A 3 HP EXHAUST FAN VENTING A POLYESTER RESIN MIXER.

A/N 476205:

TITLE V PERMIT REVISION

BACKGROUND

New Basis submitted application nos. 476311 and 484033 to permit a polyester resin mixer and dust collector, respectively. The mixer and dust collector were placed into operation in the fall of 2007. At that time, the new mixer replaced an existing mixer that was permitted under permit no. F24083 (a/n 348527). The new mixer performs the same duty as the previous mixer, to mix polyester resin with sand, gravel and calcium carbonate to make covers for polymer concrete-casted underground enclosures. New Basis uses slightly more material (2,000 lb/day) in the new mixer compared to the old mixer. The old mixer permit had a usage limit of 16,000 lb/day, the new mixer will be permitted to 18,000 lb/day.

New Basis is a Title V facility. A Title V renewal permit was issued to this facility on March 26, 2006. New Basis has proposed to revise their Title V renewal permit with application no. 476205 by adding a polyester resin mixer and dust collector. The permit revision is considered as a "de minimis significant permit revision" to the Title V renewal permit, as described in Regulation XXX evaluation.

PROCESS DESCRIPTION

New Basis manufactures polymer concrete-casted underground enclosures used to contain telephone cables, power cables, TV cables and water/turf/irrigation piping and valves. The

APPLICATION PROCESSING AND CALCULATION

covers for these enclosures are made using the mixer. The mixer is comprised of three hoppers, an 800 cfm dust collector, a 182 gallon mixing tank and a 25 hp motor. The three hoppers contain sand, gravel and calcium carbonate and are mixed with the polyester resin which is delivered by tote to the mixer. A small amount of pigment is also added. The materials in the hoppers are piped into the mixing tank and the mixing is performed only when the mixing tank is covered and vented to the dust collector. Approximately 1,800 pounds of materials are mixed per hour. The mixer is used up to 10 hr/day, 6 day/wk and 52 wk/yr.

EMISSION ESTIMATES

VOC Emissions:

There is a slight increase in VOC emissions due to the additional material used in the new mixer. VOC emissions are from the styrene that is found in the polyester resin. The increase will not need to be offset since the increase will not cause an exceedance of their existing facility-wide VOC emission cap of 5,133 lb/mon. Emissions are estimated as follows:

$$\text{Daily emissions (lb/day)} = 2.4 \times 10^{-5} * \text{VP} * \text{MW} * \text{Q} * (1 - \text{CE})$$

where:

VP = Vapor pressure (psia),

MW = Molecular weight (lb/lb-mole),

Q = Filling rate (gals/day),

CE = Control efficiency (Not applicable for this project, no VOC control)

Material: Polyester resin

Styrene Vapor Pressure = 0.087 psi

Styrene molecular weight = 104 lb/lb-mole

Hourly Mixing Amount = 1,800 lb/hr

Mix Percentage:

Sand = 30.1%

Gravel = 33.2%

Calcium Carbonate = 20.8%

Resin = 14.0%

Pigment = 1.9%

Material Usage (mix percentage x 1,800 lb/hr):

Sand = 542 lb/hr

Gravel = 598 lb/hr

Calcium Carbonate = 374 lb/hr

Resin = 252 lb/hr

Pigment = 34 lb/hr

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$$\text{Daily emissions} = 2.4 \times 10^{-5} * VP * MW * Q * (1 - CE)$$

$$\text{Daily emissions} = 2.4 \times 10^{-5} * 0.087 * 104 * 2,520 = 0.55 \text{ lb/day}$$

$$\text{Hourly emissions} = 0.55 \div 10 \text{ hr/day} = 0.055 \text{ lb/hr}$$

Using the same methodology, previous VOC emissions are calculated as follows:

$$\text{Resin usage} = 224 \text{ lb/hr (14\% x 1,600 lb/hr)}$$

$$\text{Daily emissions} = 2.4 \times 10^{-5} * VP * MW * Q * (1 - CE)$$

$$\text{Daily emissions} = 2.4 \times 10^{-5} * 0.087 * 104 * 2,240 = 0.49 \text{ lb/day}$$

$$\text{Hourly emissions} = 0.49 \div 10 \text{ hr/day} = 0.049 \text{ lb/hr}$$

VOC emission increase:

$$\text{Daily emissions} = 0.55 - 0.49 \text{ lb/day} = 0.06 \text{ lb/day}$$

$$\text{Hourly emissions} = 0.06 \div 10 \text{ hr/day} = 0.006 \text{ lb/hr}$$

PM10 Emissions:

Particulate matter emissions are generated from the mixer and hopper. Standard AQMD emission factors are used to determine emissions. Emissions are controlled with the dust collector and HEPA filter. PM10 emissions are considered to be 50% of PM emissions. PM10 emissions are calculated as follows:

$$\text{Mixer emission factor} = 0.272 \text{ lb/ton of material}$$

$$\text{Hopper emission factor} = 0.0069 \text{ lb/ton of material}$$

$$\text{Control efficiency} = 99.97\%$$

$$\text{PM10} = 0.5\text{PM}$$

$$\text{Max daily material usage} = 18,000 \text{ lb/day (9 ton/day)}$$

Uncontrolled daily PM emissions:

$$= (9 \text{ ton/day} \times 0.272 \text{ lb/ton} + 9 \text{ ton/day} \times 0.0069 \text{ lb/day})$$

$$= (2.448 + 0.0621) = 2.51 \text{ lb/day}$$

Uncontrolled daily PM10 emissions:

$$= 2.51 \times 0.5 = 1.26 \text{ lb/day}$$

Uncontrolled hourly PM10 emissions:

$$= 1.26 \text{ lb/day} \div 10 \text{ hr/day} = 0.13 \text{ lb/hr}$$

Controlled daily PM10 emissions:

$$= 2.448 \times 0.5 \text{ lb/day} \times (1 - 0.9997) = 0.0004 \text{ lb/day}$$

Controlled hourly PM10 emissions:

$$= 0.0004 \text{ lb/day} \div 10 \text{ hr/day} = 0.000037 \text{ lb/hr}$$

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Previous PM10 emissions:

Uncontrolled hourly PM10 emissions = 0.1 lb/hr

Controlled hourly PM10 emissions = 0.1 lb/hr

30-day average = 1 lb/day

RISK ASSESSMENT

Since styrene is a Rule 1401 toxic air contaminant, a Risk Assessment is required. Styrene is a contributor to both acute and chronic health hazard risks. The increase in styrene emissions from the proposed project are 0.006 lb/hr, 0.06 lb/day and 22 lb/yr. Tier 1 Screening Emission Levels for styrene are 10.5 lb/hr and 29,800 lb/yr. Since proposed styrene emissions are less than the Tier 1 Screening Emission Levels, further analysis is not required and it can be assumed that there will not be an acute or chronic health hazard risk from the proposed project.

RULE ANALYSIS

RULE 212: Public notification is not necessary since this is not a significant project. There will not be an increase in emissions greater than the threshold limits of subdivision (g), there will not be a cancer risk greater than one in a million and the facility is not located within 1,000 feet of a school.

RULES 401 & 402: AQMD database has no records within the last two years of any visible emissions or nuisance complaints against this facility. Compliance with these requirements is expected with the proper operation of the equipment.

RULE 404: The particulate matter concentration emitted from the dust collector will not exceed the limits of this rule. Calculations are as follows:

$$\text{Concentration} = \frac{0.0001 \text{ lb/hr} \times 7000 \text{ gr/lb}}{800 \text{ cfm} \times 60 \text{ min/hr}} = 0.000014 \text{ gr/ft}^3$$

Allowable limit at 800 cfm: 0.196 gr/ft³

RULE 1303:

(a): The VOC emission increase is below 1 lb/day. BACT analysis is not required. PM10 emissions are controlled by a dust collector and HEPA filter.

(b)(1): Modeling is not required, controlled PM10 hourly emissions are negligible.

(b)(2): VOC emission offsets are not required since the increase (0.06 lb/day) will not cause an exceedance of the existing facility VOC emission cap.

(b)(4): The facility is expected to be in full compliance with all applicable rules and regulations of the District.

RULE 1401: The proposed project will comply with this rule, see RISK ASSESSMENT section for details.

REGULATION XXX:

This facility is not in the RECLAIM program. The proposed project is considered as a “de minimis significant permit revision” to the Title V permit for this facility.

Rule 3000(b)(6) defines a “de minimis significant permit revision” as any Title V permit revision where the cumulative emission increases of non-RECLAIM pollutants or hazardous air pollutants (HAPs) from these permit revisions during the term of the permit are not greater than any of the following emission threshold levels:

Air Contaminant	Daily Maximum (lbs/day)
HAP	30
VOC	30
NO _x	40
PM ₁₀	30
SO _x	60
CO	220

To determine if a project is considered as a “de minimis significant permit revision” for non-RECLAIM pollutants or HAPs, emission increases for non-RECLAIM pollutants or HAPs resulting from all permit revisions that are made after the issuance of the Title V renewal permit shall be accumulated and compared to the above threshold levels. This proposed project is the first permit revision to the Title V renewal permit issued to this facility on March 26, 2006. The following table summarizes the cumulative emission increases resulting from all permit revisions since the renewal Title V permit was issued:

Revision	HAP	VOC	NO_x	PM₁₀	SO_x	CO
1 st Permit Revision: Add polyester resin mixer & dust collector	0	0	0	0	0	0
Net Emission Total	0	0	0	0	0	0
Maximum Daily	30	30	40	30	60	220

Since the cumulative emission increases resulting from all permit revisions are not greater than any of the emission threshold levels, this proposed project is considered as a “de minimis significant permit revision”.

RECOMMENDATION:

The proposed project is expected to comply with all applicable District Rules and Regulations. Since the proposed project is considered as a “de minimis significant permit revision”, it is exempt from the public participation requirements under Rule 3006 (b). A proposed permit incorporating this permit revision will be submitted to EPA for a 45-day review pursuant to Rule 3003(j). If EPA does not raise any objections within the review period, a revised Title V permit will be issued to this facility.

new basis - mixing tank 476311 1st rev