

**Shasta County Department of Resource Management
Air Quality Management District
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Evaluation Report

**Regarding Proposed Issuance of a Renewed
Title V Operating Permit to**

Knauf Insulation, GmbH

for Equipment Located at:

**3100 Ashby Road
City of Shasta Lake, CA 96019**

October 2013

**Evaluation Report
Regarding Proposed Renewal of a
Title V Operating Permit
Knauf Insulation, GmbH**

Introduction

The District proposes to renew a Title V operating permit to Knauf Insulation, GmbH (Knauf). This evaluation, with the proposed Title V operating permit, sets forth the legal and factual basis for the conditions contained in the proposed permit.

Facility Description

Knauf Insulation is a fiberglass manufacturing facility that produces both blanket insulation and blown insulation. The insulation is produced from silica sand, recycled glass, and other materials as specified in the application. The glass is initially melted in an electric furnace operating at 2500°F. The insulation is produced on the forming line where the glass is formed into fine strands in spinners and laid down onto a moving conveyor. Some of the glass is diverted to the unbonded insulation forming line. The forming lines (bonded and unbonded) are heated with natural gas burners with a total heat input of 55 MMBTU/Hr. The exhaust from the forming lines feed through seven venturi scrubbers in parallel operating at a minimum of three (3) inches water across the venturi throat.

The uncured mat from the forming process enters a natural gas fired curing oven where the binder is thermally set or cured. The oven exhaust gases pass through a Regenerative Thermal Oxidizer (RTO). The cured glass fiber mat then passes over a cooling section where cool air is pulled down through the mat and conveyor. Emissions from this section are minor in comparison to the emissions of the forming section. The exhaust gases from the cooling section are fed through a scrubber and are combined with the forming exhaust and pass through the Wet Electrostatic Precipitator (WESP). The RTO and WESP exhaust gases are combined prior to being fed into the main stack.

The finished fiberglass wool mat is trimmed and backed. The volatile organic compound emissions from the application of the backing are insignificant since a water-based adhesive is used. Some of the fiberglass wool mat trimmings and other scrap is processed into Class B blowing insulation by removing the backing, and grinding the wool. The unbonded fiberglass insulation is produced by four spinners without the use of a binder.

Since the initial Title V permit was issued, Knauf has submitted two request for modification to the Title V permit. The first was to reduce the minimum pressure drop across each of the of scrubbers from 10 inches of water column to 3 inches of water column. That modification was reviewed, approved, and incorporated into the Title V permit on April 22, 2011. The second modification request was the applicability of 40 CFR part 63, subpart NNN. When Knauf started production in 2002, the facility used a phenol-formaldehyde based binder in the fiberglass process. Using this binder the facility was subject to the requirements in subpart NNN. The facility has since switched from the phenol-formaldehyde based binder to a binder consisting of a non-toxic, renewable formulation. That modification request was reviewed, approved, and incorporated into the Title V permit on September 18, 2012. As part of the application, Knauf requested that the applicable parts of subpart NNN remain in the permit in the event that the facility reverts back to the phenol-formaldehyde based binder.

This evaluation will address the renewal of Knauf Insulation's Title V Permit.

EQUIPMENT DESCRIPTION

The major equipment located at the Knauf Insulation facility includes:

RAW MATERIALS HANDLING AND MIXING (Permit To Operate #97-PO-26)

- One (1) Raw Material Unloading Dust Collector (Griffen Model JV-9-F)
- Three (3) Sand Bin Dust Collectors (Griffen Model JV-9-F)
- Two (2) Consumer Cullet Bin Dust Collectors (Griffen Model JV-9-F)
- One (1) Dolomite Bin Dust Collector (Griffen Model JV-9-F)
- One (1) Limestone Bin Dust Collector (Griffen Model JV-9-F)
- One (1) (Spare) Bin Dust Collector (Griffen Model JV-9-F)
- One (1) Borax Bin Dust Collector (Griffen Model JV-9-F)
- One (1) Soda Ash Bin Dust Collector (Griffen Model JV-9-F)
- One (1) Feldspar Bin Dust Collector (Griffen Model JV-9-F)
- One (1) Knauf Cullet Dust Collector (Griffen Model JV-9-F)
- One (1) Weigh Scales/Conveyor Dust Collector (Griffen Model JV-9-F)
- One (1) Check Scale/Batch Mixer Dust Collector (Griffen Model JV-9-F)
- One (1) Day Bin #1 Dust Collector (Griffen Model JV-9-F)
- One (1) Day Bin #2 Dust Collector (Griffen Model JV-9-F)
- One (1) Liquid Urea Tank
- Two (2) Phenolic Resin Tanks
- Two (2) Resin-Urea Premix Tanks
- One (1) Outdoor Mineral Oil Tank
- One (1) Outdoor Aqueous Ammonia Tank
- Two (2) Ammonium Sulfate Mix Tanks
- One (1) Organosilane Weigh Tank
- One (1) Binder Mix Tank
- Two (2) Binder Supply Hold Tanks

GLASS MELTING (Permit To Operate #97-PO-27)

- Electric Glass Melting Furnace
- Two (2) 15 MMBtu North American Burner Systems, (Model 8520)
- One (1) 25,800 ACFM Custom System Dual Chamber Dust Collector (Model WP238-10)
- One (1) Marley NC Series Cooling Tower, Serial No. 169921-001

FIBERGLASS FORMING/CURING/COOLING LINES (Permit To Operate #97-PO-28)

- One (1) Natural Gas-Fired Forming Section
- One (1) Natural Gas-Fired Curing Oven w/ Low NOx/CO Burners (Maxon Cyclomax 3.7MM Btu/hr.)
- One (1) Volatile Organic Compound Binder Application Process
- Six (6) 10" P Venturi Scrubbers on Bonded Wool Forming Line (Fisher-Klosterman Model MS1100-H)
- One (1) 10" P Venturi Scrubber on Blowing Wool Forming Line (Fisher-Klosterman Model MS1200-H)
- One (1) 400,000 ACFM, 600 GPM Wet Electrostatic Precipitator (Research Cottrell Dual Chamber)
- Two (2) 1400°F Thermal Oxidizers w/ Low NOx/CO Burners (Maxon-Kinedizer 18M) on Curing Oven
- One (1) Fisher-Klosterman Model MS600L Venturi Scrubber on Cooling Line
- One (1) United McGill Regenerative Thermal Oxidizer

FIBERGLASS TRIMMING AND PACKAGING (Permit To Operate #97-PO-29)

- One (1) 9874 ACFM Trimming-Packaging Cyclone (1) & Dust Collector Assembly (Farr 48L SPCC)
- One (1) 9874 ACFM Class B Blowing Wool Cyclones (2) & Dust Collector Assembly (Farr 48L SPCC)
 - One (1) 10,000 ACFM Class A Summit Wool Production Condenser
 - One (1) 10,000 ACFM Class A Premier Tech Refeed Condenser
- One (1) 15,708 ACFM Class A Blowing Wool North Dust Collector Assembly (Farr 378 BRF12)
- One (1) 15,708 ACFM Class A Blowing Wool Center Dust Collector Assembly (Farr 378 BRF12)
 - Five (5) High Density Filter Modules (Farr R1GA-FLOW200 Glide/Pack)
 - One (1) Pacific Filtration Systems Pulse Jet Cartridge Dust Collector (Model RP-2)

INTERNAL COMBUSTION ENGINES (Authorization to Operate #02-PO-09)

- One (1) Caterpillar 1108 hp Diesel Engine, Model 3412 STA
- One (1) Clark Diesel 160hp Diesel Engine, Model JU6H-UF30
- One (1) Detroit Diesel-Allison 100 hp Diesel Engine, Model PDFP-04YT

INTERNAL COMBUSTION ENGINE (Authorization to Operate #02-PO-10)

- One (1) Caterpillar 145 hp Natural Gas Engine, Model 3306

INSIGNIFICANT EMISSION SOURCES

As approved by the U.S. Environmental Protection Agency (EPA), all equipment exempted from permit, pursuant to Shasta County Air Quality Management District (District) rule 2.5, are considered an insignificant activity. These activities include the following:

- Cooling Tower
- Welding Equipment
- Propane Storage Tanks
- Fuel Oil Tank
- Minor Printing Equipment
- Laboratory Fume Hood
- Solvent Cleaning Equipment
- Portable Propane Heaters
- Aerosol Paint Cans
- Painting Operations
- Adhesive Application

APPLICABLE FEDERAL REQUIREMENTS

Based upon the information submitted in the application and the District's review, the following applicable federal requirements apply to this facility:

SIP Requirements:

District Rule 1 – Title and Definitions

Rule 1:2 Definitions

This rule lists the definitions used throughout the District rulebook. This rule is an administrative rule. The District believes that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

District Rule 2 - Permit

Rule 2.1 and 2.1A New Source Review, Permits Required

These are the District's requirements for preconstruction permits and permits to operate. This rule is an administrative and procedural rule that is applied when a source is modified or constructed. This rule is applicable to this facility when new construction or modifications are commenced. The District feels that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 2:4 Permits to Sell or Rent Incinerators

This rule pertains to the use of incinerators. There are no incinerators at this facility. Therefore, this requirement is not applicable to this facility.

Rule 2:5 Exemptions

This rule lists the types of devices or operations that the Air Pollution Control Officer may exempt. This rule is address in District Rule 5, Attachment 1 (insignificant activities). Therefore, the District believes that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 2:6 Open Burning (2:6.a.4.c & 2:6.b)

This rule lists the regulations required to conduct open burning operations. Knauf Insulation does not conduct open burning operations at this facility. This requirement is not included in the proposed Title V permit.

Rule 2:7 Conditions for Open Burning

This rule lists the regulations required to conduct open burning operations. Knauf Insulation does not conduct open burning operations at this facility. This requirement is not included in the proposed Title V permit.

Rule 2:8 Agricultural Burning

This rule lists the regulations required to conduct open burning operations Knauf Insulation does not conduct open burning operations at this facility. This requirement is not included in the proposed Title V permit.

Rule 2:10 Action on Applications

This rule requires that an application for an Authority to Construct be filed in a manner and on the form prescribed by the Air Pollution Control Officer. This rule is an administrative rule and the District feels that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 2:12 Expiration of Applications

This rule requires that an Authority to Construct application will expire after the Permit to Operate has been issued or eighteen (18) months after the Authority to Construct was issued unless construction has commenced on the site or at a time extension is granted by the Air Pollution Control Officer. It also states that a Permit to Operate application will expire two years after being issued. This rule is an administrative rule and the District believes that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 2:14 Testing Facilities

This rule requires the operator to provide and maintain testing and sampling facilities as specified in the Authority to Construct or Permit to Operate. This requirement is included in the proposed Title V permit.

Rule 2:21 Defacing Permit (formerly Rule 2:24)

This rule requires that a permit not be defaced. This requirement is included in the proposed Title V permit.

Rule 2:23 Posting of Permit

This rule requires that the permit be posted. This requirement is included in the proposed Title V permit.

Rule 2:25 Public Records

This rule adopts by reference all state and federal rules for air contaminants. This requirement is included in the proposed Title V permit.

District Rule 3 - Prohibitions and Enforcement

Rule 3:1 Applicability of State Laws

This rule adopts by reference all state and federal rules for air contaminants. This requirement is included in the proposed Title V permit.

Rule 3:2 Specific Air Contaminants

This rule specifies limits for emissions of:

1. Combustion particulate matter in gr/dscf;
2. Particulate matter less than or equal to 10 microns in gr/dscf;
3. All other particulate matter in gr/dscf;
4. Particulate matter process weight: maximum hourly emissions as a function of process weight in tons per hour;
5. Oxides of Sulfur (as SO₂) in ppm;
6. Oxides of Nitrogen (as NO₂) in ppm; and
7. Opacity.

The requirements of this rule are included in the proposed Title V permit. Other permit conditions found in this title V Permit limiting emissions from the facility are more stringent than the emission limitations of the rule and , therefore, subsume the requirements of this rule for this particulate emission unit.

Rule 3:3 Gasoline Loading, Transfer and Dispensing

This rule requires that for stationary storage tanks that are used for retail sales, which are larger than 1.0 cubic meters, have an ARB-certified Phase I vapor recovery system install and used during fuel transfer. Knauf does not have any fuel storage tanks larger than 1.0 cubic meters, therefore, this requirement is not included in the proposed Title V permit.

Rule 3:4 Industrial Use of Organic Solvents

This rule requires that a control device achieving 85 percent control be utilized unless listed emission limits (in pounds per day) of solvent discharge into the atmosphere are met. This requirement is included in the proposed Title V permit.

Rule 3:6 Circumvention

This rule requires that emissions cannot be concealed by circumvention. This requirement is included in the proposed title V permit.

Rule 3:9 Recommendations of Air Pollution Control Officer

This rule states that no recommendation of the Air Pollution Control Officer is a guarantee that the recommended device or process will result in compliance. This rule is an administrative rule, and the District believes that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 3:11 Local Rules

This rule states that any city or public agency, having authority to do so, may enact by ordinance more restrictive rules than contained in the District's rulebook. Because this permit is a federal permit and does not concern local rules, the District believes that the environmental benefits are not such that this rule should be included in the proposed Title V permit.

Rule 3:12 Reduction of Matter of Animal Origin (Except Curing of Glue)

Knauf Insulation does not conduct any reduction of animal matter at this facility. This requirement is not included in the proposed Title V permit.

Rule 3:14 Petroleum Solvent Dry Cleaners

Knauf Insulation does not conduct any petroleum solvent dry cleaning at this facility. This requirement is not included in the proposed Title V permit.

Rule 3:15 Cutback Asphalt Paving Materials

Knauf Insulation does not conduct any operation that contains emulsified asphalt materials. This requirement is not included in the proposed Title V permit.

Rule 3:17 Organic Solvent Degreasing Operations

This rule required degreasing operations to meet both design and operating practice specifications. This rule was repealed by the District when the District adopted a revised organic solvent operations rule. The new rule has not been submitted for inclusion into the SIP. Because the District has repealed this rule, the equipment that would be regulated is listed as insignificant and is regulated by District Rule 3:4 (included as a permit condition). The District believes that the environmental benefits are not such that this rule should be included in the proposed Title V Operating Permit.

Rule 5 Additional Procedures for Issuing Permits to Operate for Sources Subject to Title V of the Federal Clean Air Act Amendments of 1990

This rule lists the requirements of the Title V program. All specific applicable requirements imposed by this rule are included in the proposed Title V permit.

NON-SIP Requirements:

Rule 2:3 Toxics New Source Review for Complying with Federal Clean Air Act Section 112(g)

A screening health risk analysis was previously done during the initial permitting process. There will be no increase in emissions with this application, therefore a health risk analysis was not required to be done.

Rule 2:11 Fees

This rule is not included in the SIP and is therefore not evaluated in this permit action.

Prevention of Significant Deterioration (PSD) Permitting

This regulation sets the procedures for the review of new or modifications of existing major stationary emission sources. ~~Knauf was issued the original PSD permit as part of the District's Authority to Construct for the facility.~~ Subsequently, EPA has become the permitting authority for PSD permits. Any portions of 40 CFR 63, subpart NNN that is incorporated into the current PSD permit shall remain in effect and remain in the Title V permit until the time that Knauf Insulation submits an application to EPA Region IX to have subpart NNN removed from the PSD permit.

40 CFR 60, Subpart PPP

The New Source Performance Standard (NSPS) for wool fiberglass insulation manufacturing plants was incorporated into the Title V permit when the facility was initially permitted. All the applicable requirements from the NSPS are currently included into the conditions of the current Title V Permit.

40 CFR 63, Subpart NNN

The requirements of this subpart apply to the emissions of hazardous air pollutants from new or existing rotary spin wool fiberglass manufacturing line producing a bonded wool fiberglass insulation product. The definition of a wool fiberglass manufacturing facility is defined as "...any facility manufacturing wool fiberglass on a rotary spin manufacturing line...". A rotary spin is defined as "...a process used to produce wool fiberglass building insulation...". The definition of building insulation is "...means bonded wool

fiberglass insulation...". Bonded is defined as "means wool fiberglass to which a phenol-formaldehyde binder has been applied." The phenol-formaldehyde binder has been replaced with a binder formulation that does not contain any hazardous air pollutants. Section 63.1380 (c) states the requirements of this subpart do not apply to a manufacturing facility that has demonstrated to the Administrator it is not a major source for hazardous air pollutants. Published in the Federal Register Vol. 69, No. 130 on Thursday, July 8, 2004, EPA determined that if a facility switches from a phenol-formaldehyde binder to an acrylic binder, then the facility no longer meets the definition of a "wool fiberglass manufacturing facility" as defined in 40 CFR 63.1381, and therefore is no longer subject to Subpart NNN. The new binder formulation at Knauf Insulation is not an acrylic binder. In conversations between EPA, Region 4, and Knauf Insulation, EPA has determined that the same Applicability Determination Index, which is quoted in the Federal Register, is applicable to the binder change at Knauf Insulation. Therefore, 40 CFR 63, Subpart NNN is not applicable when Knauf Insulation is using binder that does not contain phenol-formaldehyde. The Shasta County Air Quality Management District, which has delegated authority from EPA for Subpart NNN of Part 63, concurs with this determination.

The sections of 40 CFR Part 63, subpart NNN that pertain to particulate matter are included as operating conditions in the Prevention of Significant Deterioration Permit (PSD). To ensure consistency between the PSD Permit and the Title V Permit, the sections of Subpart NNN, that have been included in the PSD Permit, shall remain as operating conditions in the Title V Permit.

Permit Streamlining

A permit streamlining analysis was done on a previous Title V evaluation. There were no permit modifications that would require the streamlining analysis to be reevaluated as part of the Title V renewal process and modified.

Specific Permit Actions and Modifications

1. During the review and evaluation process, the supplemental testing requirements for the increased production rate and installation of the Regenerative Thermal Oxidizer will be completed prior to the issuance of the Title V renewal. Title V condition C12.a), supplemental testing requirements for the increased production rate, and condition C12.c), supplemental testing requirements for the installation of the Regenerative Thermal Oxidizer, have been removed from the permit.
2. During the review of the current Title V permit conditions, a couple of typographical errors were discovered and corrected.
3. Updated the mailing address of EPA Region IX, Enforcement Division, in condition G42.b).
4. During the review and evaluation process, it was noted that condition H9. was a duplicate condition as part of condition H3.b). Condition H9 was removed from the permit.

CONCLUSIONS AND RECOMMENDATION

The proposed Title V Permit for the Knauf Insulation, GmbH facility is an affected facility with respect to the requirements of District Rule 5, ADDITIONAL PROCEDURES FOR ISSUING PERMITS TO OPERATE FOR SOURCE SUBJECT TO TITLE V OF THE CLEAN AIR ACT AMENDMENTS OF 1990 (adopted 9-28-93 and amended 5-8-01).

Therefore, it is the recommendation of the District that the Title V Operating Permit for Knauf Insulation, GmbH be renewed.