CLASS II AIR QUALITY MODELING REPORT

Knauf Insulation, Inc. > Inwood Facility

Amended Tables

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This document serves to provide additional information regarding the modeling results from the PSD application for Knauf Insulation's (Knauf's) Inwood facility.

This table replaced the Table 7.2-1 found in the December 2016 report. It has been updated to list the maximum model output concentration (and Knauf's contribution to that concentration) regardless of Knauf's contribution to the total.

Table 7.2-1.R NAAQS Analysis Results (Revised)

Pollutant	Averaging Period	Modeled Maximum Rank	Modeled Maximum Concentration ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)[2]	NAAQS ($\mu g/m^3$)	Knauf Concentration at Maximum Receptor ($\mu g/m^3$)
$PM_{2.5}$	24-hour	H8H Averaged over 5 years	102.1	26.0	128.1	35	0.08
$PM_{2.5}$	Annual	1H Averaged over 5 years	13.50	10.3	23.8	12	0.05
PM_{10}	24-hour	H6H over 5 years	3018.1	23.0	3041.1	150	0.55
NO_2[1]	1-hour	H8H Averaged over 5 years	259.8	77.5	337.3	188	0.01
NO_2[1]	Annual	Maximum over 5 years	7.7	16.7	24.4	100	0.03

1   Results for NO_2 consider ARM.
2   When considering time and space, Knauf did not contribute to a modeled NAAQS exceedance. The Knauf concentration listed is either the maximum at any time (i.e., annual NO_2, PM_{10}, and annual $PM_{2.5}$) at the maximum receptor or the Knauf contribution at a specific modeled event determined using the MAXDCONT option.

Secondly, Trinity reviewed the receptor associated with the maximum modeled Knauf concentration in the form of the SIL. For that receptor, the maximum total modeled output concentration (including background) is listed. Note that the Knauf and total concentrations do not necessarily temporally coincide when considering short-term standards (i.e., non-annual average NAAQS). Since no NAAQS exceedances were modeled for annual average NO_2, no further analysis of that standard was performed.

Table 7.2-2.R NAAQS Analysis Results – Knauf Reviews

Pollutant	Averaging Period	Knauf Maximum Rank	Total Maximum Rank	Maximum Knauf Concentration ($\mu g/m^3$)	Total Concentration at Maximum Knauf Receptor ($\mu g/m^3$)[2, 3]	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	24-hour	H1H Averaged over 5 years	H8H Averaged over 5 years	10.0	33.6	35
$PM_{2.5}$	Annual	1H Averaged over 5 years	1H Averaged over 5 years	1.0	11.7	12
PM_{10}	24-hour	1H over 5 years	H6H over 5 years	11.5	74.2	150
NO_2[1]	1-hour	H1H Averaged over 5 years	H8H Averaged over 5 years	72.4	168.1	188
NO_2[1]	Annual	Maximum over 5 years	Maximum over 5 years	5.2	22.4	100

1   Results for NO_2 consider ARM.
2   When considering time and space, Knauf did not contribute to a modeled NAAQS exceedance. The Knauf concentration listed is either the maximum at any time (i.e., annual NO_2, PM_{10}, and annual $PM_{2.5}$) at the maximum receptor or the Knauf contribution at a specific modeled event determined using the MAXDCONT option.
3   Total concentration values include background concentrations.

Third, and lastly, Trinity reviewed the NAAQS modeling results by reviewing the receptors that were modeled in excess of the NAAQS. For these locations, the Knauf concentration at that receptor and for the specified Knauf rank is provided. Note that in some instances (i.e., 24-hour $PM_{2.5}$ and 1-hour NO_2) the Knauf concentration is that found from the MAXDCONT output.

Table 7.2-3.R NAAQS Analysis Results – Additional Knauf Reviews

Pollutant	Averaging Period	Knauf Maximum Rank	Total Maximum Rank	Maximum Knauf Concentration at Event Receptor ($\mu g/m^3$)[2]	Total Concentration at Maximum Knauf Receptor ($\mu g/m^3$) [3]	NAAQS ($\mu g/m^3$)
$PM_{2.5}$	24-hour	H8H Averaged over 5 years	H8H Averaged over 5 years	0.5	35.0	35
	Annual	1H Averaged over 5 years	1H Averaged over 5 years	0.1	12.0	12
PM_{10}	24-hour	1H over 5 years	H6H over 5 years	1.0	152.8	150
NO_2[1]	1-hour	H1H Averaged over 5 years	H8H Averaged over 5 years	0.7	205.3	188

1   Results for NO_2 consider ARM.
2   When considering time and space, Knauf did not contribute to a modeled NAAQS exceedance.
3   Total concentration values include background concentrations.

In reviewing Class II Increment, a similar review was conducted as to that performed for the NAAQS.

Table 7.3-1.R Class II Increment Analysis Results (Revised)

Pollutant	Averaging Period	Modeled Maximum Rank	Modeled Maximum Concentration ($\mu g/m^3$)	Increment ($\mu g/m^3$)	Knauf Concentration at Maximum Receptor ($\mu g/m^3$)[2]
PM$_{2.5}$	24-hour	H2H over 5 years (2011)	17.2	9	0.4
PM$_{2.5}$	Annual	Maximum over 5 years (2013)	1.0	4	0.04
PM$_{10}$	24-hour	H2H over 5 years (2013)	659.0	30	0.35
PM$_{10}$	Annual	Maximum over 5 years (2011)	89.4	17	0.04
NO$_2$[1]	Annual	Maximum over 5 years (2013)	6.7	25	0.1

1   Results for NO$_2$ consider ARM.
2   When considering time and space, Knauf did not contribute to a modeled Increment exceedance. The Knauf concentration listed is the maximum at any time at the maximum receptor.

Secondly, Trinity reviewed the receptor associated with the maximum Knauf concentration in the form of the SIL. For that receptor, the maximum total model output concentration is listed. Note that the Knauf and total concentrations do not necessarily temporally coincide when considering short-term standards (i.e., non-annual average Increment).

Table 7.3-2.R Class II Increment Analysis Results –Knauf Reviews

Pollutant	Averaging Period	Knauf Maximum Rank	Total Maximum Rank	Maximum Knauf Concentration (μg/m³)[2]	Modeled Concentration at Maximum Knauf Receptor (μg/m³)	Increment (μg/m³)
$PM_{2.5}$	24-hour	H2H over 5 years (2013)	H2H over 5 years (2013)	7.0	7.1	9
$PM_{2.5}$	Annual	Max. annual average (2015, worst-case)	Annual average (2015, worst-case)	0.5	0.6	4
PM_{10}	24-hour	H1H over 5 years (2015)	H2H over 5 years (2015)	11.3	11.3	30
PM_{10}	Annual	Max. annual average (2015, worst-case)	Annual average (2015, worst-case)	1.2	1.9	17
NO_2[1]	Annual	Max. annual average (2015, worst-case)	Annual average (2015, worst-case)	5.2	5.6	25

1   Results for NO_2 consider ARM.
2   When considering time and space, Knauf did not contribute to a modeled Increment exceedance. The Knauf concentration listed is the maximum at any time at the maximum receptor.

Third, and lastly, Trinity reviewed the Increment modeling results by reviewing the receptors that were modeled in excess of the Increment. For these locations, the Knauf concentration at that receptor and for the specified Knauf rank is provided. Note that since there were no Increment exceedances for annual NO_2 or annual $PM_{2.5}$ Increment those averaging periods were not included.

Table 7.3-3.R Class II Increment Analysis Results –Knauf Reviews

Pollutant	Averaging Period	Knauf Maximum Rank	Total Maximum Rank	Maximum Knauf Concentration at Event Receptor ($\mu g/m^3$)[2]	Modeled Concentration at Maximum Knauf Receptor ($\mu g/m^3$)	Increment ($\mu g/m^3$)
PM$_{2.5}$	24-hour	H2H over 5 years (2011)	H2H over 5 years (2011)	0.4	9.3	9
PM$_{10}$	24-hour	H1H over 5 years (2012)	H2H over 5 years (2012)	1.6	33.4	30
PM$_{10}$	Annual	Max. annual average (2015, worst-case)	Annual average (2015, worst-case)	0.04	89.4	17

1   When considering time and space, Knauf did not contribute to a modeled Increment exceedance. The Knauf concentration listed is the maximum at any time at the maximum receptor.