

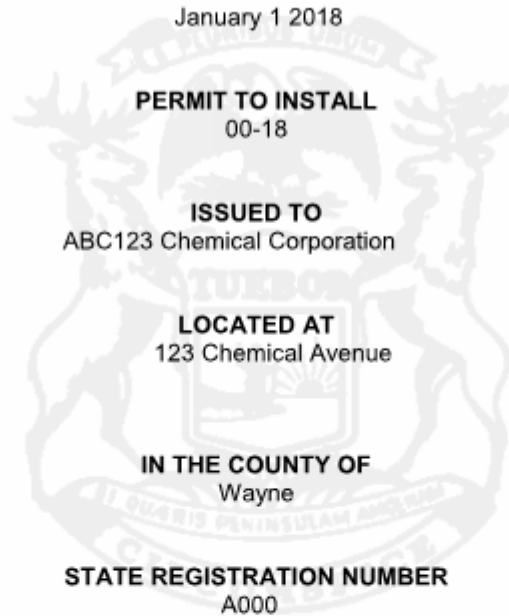
AIR QUALITY PERMIT TO INSTALL EXEMPTIONS – NAVIGATING MEANINGFUL CHANGE

OCTOBER 16, 2018



FISHBECK, THOMPSON, CARR & HUBER
engineers | scientists | architects | constructors

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION



The Air Quality Division has approved this Permit to Install, pursuant to the delegation of authority from the Michigan Department of Environmental Quality. This permit is hereby issued in accordance with and subject to Section 5505(1) of Article II, Chapter I, Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Pursuant to Air Pollution Control Rule 336.1201(1), this permit constitutes the permittee's authority to install the identified emission unit(s) in accordance with all administrative rules of the Department and the attached conditions. Operation of the emission unit(s) identified in this Permit to Install is allowed pursuant to Rule 336.1201(6).

DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: December 1, 2017	
DATE PERMIT TO INSTALL APPROVED: January 1, 2018	SIGNATURE:
DATE PERMIT VOIDED:	SIGNATURE:
DATE PERMIT REVOKED:	SIGNATURE:

DOES THIS APPLY TO ME?

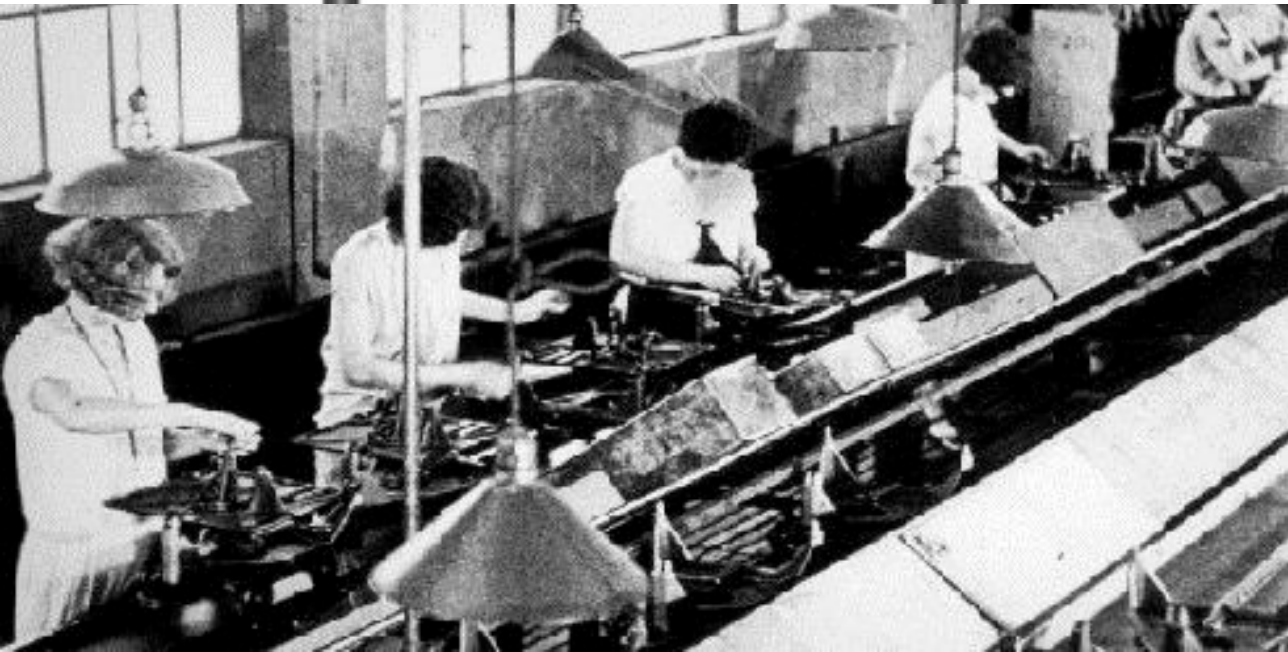
- ▶ Do you have an Air Permit (aka PTI) for a process?
- ▶ Have you, or do you plan to make small changes to the process, change suppliers, or modify formulations, etc.?
- ▶ Do you review your proposed process or material changes against your PTI application before making a change to your process? (Hint: you should)

MEANINGFUL CHANGE EXEMPTIONS

- ▶ Allows you to make minor changes to your process through a permitting exemption instead of having to modify permit.
- ▶ Compares the emissions reviewed as part of the permit application to the emissions after the proposed change.
- ▶ If the change meets the exemption, and you will continue to meet your PTI requirements, then you can make the change without a permit modification.



MEANINGFUL CHANGE EXEMPTIONS ARE IDENTIFIED IN RULES 285(2)



- ▶ (b) Changes that do not involve meaningful increase in TAC emissions or in quality/nature of TAC emissions
- ▶ (c) Changes can involve limited meaningful increases due to changes in: fuel supply; location; or process not altering quality and nature, or increase quantity beyond what is allowed in PTI.
- ▶ (f) Adding control equipment that does not result in meaningful change of TAC emissions

EXAMPLES OF TYPES OF CHANGES

- ▶ Change in the supplier or formulation of similar raw materials, fuels, or paints and other coatings.
- ▶ Change in the sequence of the process.
- ▶ Change in the method of raw material addition.
- ▶ Change in the method of product packaging.
- ▶ Change in temperature, pressure, or other similar operating parameters that do not affect air cleaning device performance.
- ▶ Installation of a floating roof on an open top petroleum storage tank.
- ▶ Replacement of a fuel burner in a boiler with an equally or more thermally efficient burner.
- ▶ Lengthening a paint drying oven to provide additional curing time.
- ▶ Changes in the supplier or supply of the same type of virgin fuel, such as coal, no. 2 fuel oil, no. 6 fuel oil, or natural gas.
- ▶ Changes in the location, within the storage area, or configuration of a material storage pile or material handling equipment.
- ▶ **Changes in a process or process equipment to the extent that such changes do not alter the quality and nature, or increase the quantity, of the emission of the air contaminant beyond the level which has been described in and allowed by an approved permit to install, permit to operate, or order of the department.**
- ▶ Installation or construction of air pollution control equipment if the control equipment itself does not actually generate a significant amount of criteria air contaminants

HOW DO WE DETERMINE IF SOMETHING IS A MEANINGFUL CHANGE?



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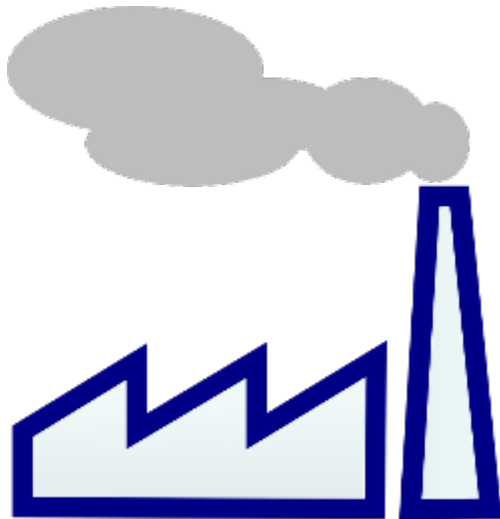
WHAT IS A MEANINGFUL CHANGE

(THE LONG DEFINITION)

- (3) For the purposes of this rule, “meaningful” with respect to toxic air contaminant emissions is defined as follows:
- (i) “Meaningful change in the quality and nature” means a change in the toxic air contaminants emitted that results in an increase in the cancer or non-cancer hazard potential that is 10% or greater, or which causes an exceedance of a permit limit. The hazard potential is the value calculated for each toxic air contaminant involved in the proposed change, before and after the proposed change, and it is the potential to emit (hourly averaging time) divided by the initial risk screening level or the adjusted annual initial threshold screening level (ITSL), for each toxic air contaminant and screening level involved in the proposed change. The adjusted annual ITSL is the ITSL that has been adjusted as needed to an annual averaging time utilizing averaging time conversion factors in accordance with the models and procedures in 40 C.F.R §51.160(f) and Appendix W, adopted by reference in R 336.1902. The percent increase in the hazard potential is determined from the highest cancer and non-cancer hazard potential before and after the proposed change. The potential to emit before the proposed change is the baseline potential to emit established in an approved permit to install application on or after April 17, 1992, that has not been voided or revoked, unless it has been voided due to incorporation into a renewable operating permit.
 - (ii) “Meaningful increase in the quantity of the emission” means an increase in the potential to emit (hourly averaging time) of a toxic air contaminant that is 10% or greater compared to a baseline potential to emit, or which results in an increase in the cancer or non-cancer hazard potential that is 10% or greater, or which causes an exceedance of a permit limit. The baseline is the potential to emit established in an approved permit to install application on or after April 17, 1992 that has not been voided or revoked, unless it has been voided due to incorporation into a renewable operating permit.

SHORT(ER) VERSION

MEANINGFUL INCREASE IN
QUALITY AND NATURE OR
QUANTITY OF AN AIR
CONTAMINANT



Increase of 10% or Greater from the
baseline of:

- Noncancer Hazard Potential,
- Cancer Hazard Potential, or
- Potential to Emit of TAC

Or a Change that Causes a Permit
Exceedance (DEQ to establish more
guidance)

BASELINE:

PTE of TAC and Hazard Potential based
on the Screening Levels established in
an approved PTI application after
4/17/92.

MEANINGFUL CHANGE

EXAMPLE



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SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 1

IDENTIFY TACS REVIEWED DURING PERMITTING

IDENTIFY TACS AFTER THE PROPOSED CHANGE

Toxic Air Contaminant	CAS No.
Sec-butyl alcohol	78-92-2
butyl cellosolve	111-76-2
propylene glycol monomethyl et	108-65-6
MDI	101-68-8
MDI mixed isomers	26447-40-5
n-methylpyrrolidone	872-50-4
Benzene	71-43-2
1,4-Butanediol (BDO)	110-63-4

Toxic Air Contaminant	CAS No.
Sec-butyl alcohol	78-92-2
butyl cellosolve	111-76-2
propylene glycol monomethyl et	108-65-6
MDI	101-68-8
MDI mixed isomers	26447-40-5
Isomers of xylene	1330-20-7
Phenanthrene	85-01-8
Toluene	108-88-3
Methylene Chloride	75-09-2
1,4-Butanediol (BDO)	110-63-4

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 2 & 3

IDENTIFY HOURLY PTE &
SCREENING LEVELS REVIEWED
IN PTI APPLICATION
THIS IS YOUR BASELINE

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL	ITSL	
			IRSL (ug/m3)	ITSL (ug/m3)	ITSL Averaging Time
BASELINE IN 2008					
Sec-butyl alcohol	78-92-2	0.60		3,050	8 hr
butyl cellosolve	111-76-2	0.45		13,000	24 hr
propylene glycol monom	108-65-6	0.72		6,000	annual
MDI	101-68-8	1.00E-03		0.60	24 hr
MDI mixed isomers	26447-40-5	7.00E-03		0.60	24 hr
n-methylpyrrolidone	872-50-4	1.00		700	24 hr
Benzene	71-43-2	0.50	0.10	30	24 hr
1,4-Butanediol (BDO)	110-63-4	0.05		15	annual

IDENTIFY CURRENT SCREENING
LEVELS AFTER PROPOSED CHANGE

Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL	ITSL	
			IRSL (ug/m3)	ITSL (ug/m3)	ITSL Averaging Time
PROPOSED CHANGE					
Sec-butyl alcohol	78-92-2	0.65	-	3,000	8 hr
butyl cellosolve	111-76-2	0.48	-	1,600	annual
propylene glycol monomet	108-65-6	0.77	-	5,400	1 hr
MDI	101-68-8	9.00E-04	-	0.60	annual
MDI mixed isomers	26447-40-5	7.60E-03	-	0.60	24 hr
Isomers of xylene	1330-20-7	1.10	-	390	annual
Phenanthrene	85-01-8	0.01	-	0.10	annual
Toluene	108-88-3	5.00	-	5,000	24 hr
Methylene Chloride	75-09-2	3.00	60	2,000	annual

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 4

CONVERT ALL SCREENING
LEVELS TO ADJUSTED ANNUAL
AVERAGING TIME (AT)

ADJUSTED ANNUAL AT =
ITSL X CONVERSION FACTOR

Conversion Factors			
1 hr	8 hr	24 hr	Annual
0.1	0.11	0.17	1

Chemical	CAS	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL
BASELINE IN 2008					
Sec-butyl alcohol	78-92-2	3,050	8 hr	0.11	336
butyl cellosolve	111-76-2	13,000	24 hr	0.17	2,210
propylene glycol monom	108-65-6	6,000	annual	1.00	6,000
MDI	101-68-8	0.60	24 hr	0.17	0.10
MDI mixed isomers	26447-40-5	0.60	24 hr	0.17	0.10
n-methylpyrrolidone	872-50-4	700	24 hr	0.17	119
Benzene	71-43-2	30	24 hr	0.17	5.10
1,4-Butanediol (BDO)	110-63-4	15	annual	1.00	15
PROPOSED CHANGE					
Sec-butyl alcohol	78-92-2	3,000	8 hr	0.11	330
butyl cellosolve	111-76-2	1,600	annual	1.00	1,600
propylene glycol monom	108-65-6	5,400	1 hr	0.10	540
MDI	101-68-8	0.60	annual	1.00	0.60

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 5

CALCULATE HAZARD
POTENTIAL(HP) FOR EACH
ADJUSTED SCREENING LEVEL
(ASL)

Hazard Potential (HP) =
Hourly PTE / IRSL
or
Hourly PTE / ASL

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL		ITSL	
			HP (PTE÷ IRSL)	Adjusted annual AT ITSL	HP (PTE÷ Adjusted ITSL)	
BASELINE IN 2008						
Sec-butyl alcohol	78-92-2	0.60	-	336	1.79E-03	
butyl cellosolve	111-76-2	0.45	-	2,210	2.04E-04	
propylene glycol monom	108-65-6	0.72	-	6,000	1.20E-04	
MDI	101-68-8	1.00E-03	-	0.10	9.80E-03	
MDI mixed isomers	26447-40-5	7.00E-03	-	0.10	0.07	
n-methylpyrrolidone	872-50-4	1.00	-	119	8.40E-03	
Benzene	71-43-2	0.50	5.00	5.10	0.10	
1,4-Butanediol (BDO)	110-63-4	0.05	-	15	3.33E-03	
PROPOSED CHANGE						
Sec-butyl alcohol	78-92-2	0.65	-	330	1.97E-03	
butyl cellosolve	111-76-2	0.48	-	1,600	3.00E-04	
propylene glycol monom	108-65-6	0.77	-	540	1.43E-03	
MDI	101-68-8	9.00E-04	-	0.60	1.50E-03	
MDI mixed isomers	26447-40-5	7.60E-03	-	0.10	0.07	
Isomers of xylene	1330-20-7	1.10	-	390	2.82E-03	
Phenanthrene	85-01-8	0.01	-	0.10	0.11	
Toluene	108-88-3	5.00	-	850	5.88E-03	
Methylene Chloride	75-09-2	3.00	0.05	2,000	1.50E-03	
Methylene Chloride	75-09-2	3.00		1,400	2.14E-03	
1,4-Butanediol (BDO)	110-63-4	0.05	-	79	6.84E-04	

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 6

FIND THE MAXIMUM
NONCANCER HP (ITSL) AND
CANCER HP (IRSL) OF
EXISTING AND PROPOSED

- The ITSLs and IRSLs are looked at separately
- If the Baseline only included review of noncarcinogens, you cannot substitute/add a carcinogen, and vice versa

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL		ITSL				
			IRSL (ug/m3)	HP (PTE÷ IRSL)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)
BASELINE IN 2008									
Sec-butyl alcohol	78-92-2	0.60		-	3,050	8 hr	0.11	336	1.79E-03
butyl cellosolve	111-76-2	0.45		-	13,000	24 hr	0.17	2,210	2.04E-04
propylene glycol monom	108-65-6	0.72		-	6,000	annual	1.00	6,000	1.20E-04
MDI	101-68-8	1.00E-03		-	0.60	24 hr	0.17	0.10	9.80E-03
MDI mixed isomers	26447-40-5	7.00E-03		-	0.60	24 hr	0.17	0.10	0.07
n-methylpyrrolidone	872-50-4	1.00		-	700	24 hr	0.17	119	8.40E-03
Benzene	71-43-2	0.50	0.10	5.00	30	24 hr	0.17	5.10	0.10
1,4-Butanediol (BDO)	110-63-4	0.05		-	15	annual	1.00	15	3.33E-03
				-					-
MAX				5.00					0.10
PROPOSED CHANGE									
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)
Sec-butyl alcohol	78-92-2	0.65	-	-	3,000	8 hr	0.11	330	1.97E-03
butyl cellosolve	111-76-2	0.48	-	-	1,600	annual	1.00	1,600	3.00E-04
propylene glycol monom	108-65-6	0.77	-	-	5,400	1 hr	0.10	540	1.43E-03
MDI	101-68-8	9.00E-04	-	-	0.60	annual	1.00	0.60	1.50E-03
MDI mixed isomers	26447-40-5	7.60E-03	-	-	0.60	24 hr	0.17	0.10	0.07
Isomers of xylene	1330-20-7	1.10	-	-	390	annual	1.00	390	2.82E-03
Phenanthrene	85-01-8	0.01	-	-	0.10	annual	1.00	0.10	0.11
Toluene	108-88-3	5.00	-	-	5,000	24 hr	0.17	850	5.88E-03
Methylene Chloride	75-09-2	3.00	60	0.05	2,000	annual	1.00	2,000	1.50E-03
Methylene Chloride	75-09-2	3.00			14,000	1 hr	0.10	1,400	2.14E-03
1,4-Butanediol (BDO)	110-63-4	0.05	-	-	79	annual	1.00	79	6.84E-04
MAX				0.05					0.11

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 7

DETERMINE % CHANGE OF HP
(MUST BE LESS THAN 10% TO
NOT BE MEANINGFUL)

$$\% \text{ CHANGE} = (\text{PROP HP} - \text{BL HAP}) / \text{BL HP} \times 100$$

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in IRSL	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in ITSL
BASELINE IN 2008											
Benzene	71-43-2	0.50	0.10	5.00	NO	30	24 hr	0.17	5.10	0.10	YES
MAX				5.00						0.10	
			IRSL			ITSL					
Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL (ug/m3)	HP (PTE÷ IRSL)	Change in HP	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ ITSL)	Change in HP
PROPOSED CHANGE											
Phenanthrene	85-01-8	0.01	-	-	-	0.10	annual	1.00	0.10	0.11	9.14%
Methylene Chloride	75-09-2	3.00	60	0.05	-99.00%	2,000	annual	1.00	2,000	1.50E-03	-98.47%
MAX				0.05	-99.00%					0.11	9.14%

SEVEN STEP PROCESS ESTABLISHED IN AQD POLICY AND PROCEDURE AQD-025 STEP 7

DETERMINE % CHANGE OF
EMISSIONS
(MUST BE LESS THAN 10% TO
NOT BE MEANINGFUL)

$$\% \text{ CHANGE} = (\text{PROP PTE} - \text{BL PTE}) / \text{BL PTE} \times 100$$

Chemical	CAS	BASELINE PTE (lb/hr)	EMISSIONS	
			PROPOSED PTE (lb/hr)	CHANGE in Emissions
Sec-butyl alcohol	78-92-2	0.60	0.65	8.33%
butyl cellosolve	111-76-2	0.45	0.48	6.67%
propylene glycol monom	108-65-6	0.72	0.77	6.94%
MDI	101-68-8	1.00E-03	9.00E-04	-10.00%
MDI mixed isomers	26447-40-5	7.00E-03	7.60E-03	8.57%
n-methylpyrrolidone	872-50-4	1.00	-	-100.00%
Benzene	71-43-2	0.50	-	-100.00%
1,4-Butanediol (BDO)	110-63-4	0.05	0.05	8.00%
MAX				8.57%

Table 3 – Meaningful Change Evaluation

Meaningful Change Analysis

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL			ITSL						EMISSIONS	
			IRSL (ug/m3)	HP (PTE÷IRSL)	Change in IRSL	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008													
Sec-butyl alcohol	78-92-2	0.60		-	-	3,050	8 hr	0.11	336	1.79E-03	YES	0.65	8.33%
butyl cellosolve	111-76-2	0.45		-	-	13,000	24 hr	0.17	2,210	2.04E-04	YES	0.48	6.67%
propylene glycol monom	108-65-6	0.72		-	-	6,000	annual	1.00	6,000	1.20E-04	YES	0.77	6.94%
MDI	101-68-8	1.00E-03		-	-	0.60	24 hr	0.17	0.10	9.80E-03	YES	9.00E-04	-10.00%
MDI mixed isomers	26447-40-5	7.00E-03		-	-	0.60	24 hr	0.17	0.10	0.07	NO	7.60E-03	8.57%
n-methylpyrrolidone	872-50-4	1.00		-	-	700	24 hr	0.17	119	8.40E-03	YES	-	-100.00%
Benzene	71-43-2	0.50	0.10	5.00	NO	30	24 hr	0.17	5.10	0.10	YES	-	-100.00%
1,4-Butanediol (BDO)	110-63-4	0.05		-	-	15	annual	1.00	15	3.33E-03	YES	0.05	8.00%
				-	-					-			
MAX				5.00						0.10			8.57%

Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL			ITSL						EMISSIONS	
			IRSL (ug/m3)	HP (PTE÷IRSL)	Change in HP	ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE÷ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE													
Sec-butyl alcohol	78-92-2	0.65	-	-	-	3,000	8 hr	0.11	330	1.97E-03	-97.99%	0.60	8.33%
butyl cellosolve	111-76-2	0.48	-	-	-	1,600	annual	1.00	1,600	3.00E-04	-99.69%	0.45	6.67%
propylene glycol monom	108-65-6	0.77	-	-	-	5,400	1 hr	0.10	540	1.43E-03	-98.55%	0.72	6.94%
MDI	101-68-8	9.00E-04	-	-	-	0.60	annual	1.00	0.60	1.50E-03	-98.47%	1.00E-03	-10.00%
MDI mixed isomers	26447-40-5	7.60E-03	-	-	-	0.60	24 hr	0.17	0.10	0.07	-24.00%	7.00E-03	8.57%
Isomers of xylene	1330-20-7	1.10	-	-	-	390	annual	1.00	390	2.82E-03	-97.12%	-	-
Phenanthrene	85-01-8	0.01	-	-	-	0.10	annual	1.00	0.10	0.11	9.14%	-	-
Toluene	108-88-3	5.00	-	-	-	5,000	24 hr	0.17	850	5.88E-03	-94.00%	-	-
Methylene Chloride	75-09-2	3.00	60	0.05	-99.00%	2,000	annual	1.00	2,000	1.50E-03	-98.47%	-	-
Methylene Chloride	75-09-2	3.00				14,000	1 hr	0.10	1,400	2.14E-03	-97.81%	-	-
1,4-Butanediol (BDO)	110-63-4	0.05	-	-	-	79	annual	1.00	79	6.84E-04	-99.30%	0.05	8.00%
MAX				0.05	-99.00%					0.11	9.14%		8.57%

THINGS TO WATCH OUT FOR

WHEN IN DOUBT TALK TO YOUR INSPECTOR

Chemical	CAS	BASELINE PTE (lb/hr)	ITSL						EMISSIONS	
			ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE± ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008										
Sec-butyl alcohol	78-92-2	0.60	3,050	8 hr	0.11	336	1.79E-03	YES	0.65	8.33%
MAX							1.79E-03			8.33%
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL						EMISSIONS	
			ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE± ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
Sec-butyl alcohol	78-92-2	0.65	3,000	8 hr	0.11	330	1.97E-03	10.14%	0.60	8.33%
MAX							1.97E-03	10.14%		8.33%

If we were only looking at sec-butyl alcohol, the change in ITSL between the Baseline and Proposed would result in a meaningful increase in Hazard Potential. You may be able to look at 285(2)(c)(iii).

Chemical	CAS	BASELINE PTE (lb/hr)	ITSL						EMISSIONS	
			ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE± ITSL)	Change in ITSL	PROPOSED PTE (lb/hr)	CHANGE in Emissions
BASELINE IN 2008										
1,4-Butanediol (BDO)	110-63-4	0.05	15	annual	1.00	15	3.33E-03	YES	0.06	10.00%
MAX							3.33E-03			10.00%
Chemical	CAS	PROPOSED PTE (lb/hr)	ITSL						EMISSIONS	
			ITSL (ug/m3)	ITSL Averaging Time	ITSL AT conversion factor	Adjusted annual AT ITSL	HP (PTE± ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emissions
PROPOSED CHANGE										
1,4-Butanediol (BDO)	110-63-4	0.06	79	annual	1.00	79	6.96E-04	-79.11%	0.05	10.00%
MAX							6.96E-04	-79.11%		10.00%

BDO has a decrease in it's ITSL, however if we increased emissions by 10% or more, this would still be considered meaningful. You may be able to look at 285(2)(c)(iii).

WHAT HAPPENS IF I HAVE A MEANINGFUL CHANGE



FISHBECK, THOMPSON, CARR & HUBER
engineers | scientists | architects | constructors

IT'S MEANINGFUL – NOW WHAT?

WHEN IN DOUBT TALK TO YOUR INSPECTOR

- Submit a permit application for the change
- It may be also be possible to use 285(2)(c)(iii), which allows for a meaningful change:
 - to the extent that such changes do not alter the quality and nature, or increase the quantity, of the emission of the air contaminant beyond the level which has been described in and allowed by an approved permit to install, permit to operate, or order of the department.
- MDEQ is looking at providing more guidance on this exemption and is willing to listen to industry suggestions.

EXAMPLE

Table 2 – Meaningful Change Evaluation
Meaningful Change Analysis

Chemical	CAS	BASELINE PTE (lb/hr)	IRSL			ITSL					
			IRSL (ug/m ³)	HP (PTE÷IRSL)	Change in IRSL	ITSL (ug/m ³)	ITSL Averaging Time	ITSL AT conversion	Adjusted annual AT ITSL	HP (PTE÷ITSL)	Change in ITSL
Baseline in 2014											
ethylbenzene	100-41-4	22.92	3.00	7.64	YES	1,000.00	24 hr	0.17	170.00	0.13	NO
2-butoxyethanol	111-76-2	2.45E-03	-	-	-	1,600.00	24 hr	0.17	272.00	9.03E-06	YES
MAX				7.64						8.65	

Chemical	CAS	PROPOSED PTE (lb/hr)	IRSL			ITSL						EMISSIONS		ITSL Hazard Potential of SAME TAC	
			IRSL (ug/m ³)	HP (PTE÷IRSL)	Change in HP	ITSL (ug/m ³)	ITSL Averaging Time	ITSL AT conversion	Adjusted annual AT ITSL	HP (PTE÷ITSL)	Change in HP	BASELINE PTE (lb/hr)	CHANGE in Emission	BASELINE PTE (lb/hr)	CHANGE in HP
MEANINGFUL CHANGE DEMONSTRATION FOR NEW COATINGS 2017-18															
ethylbenzene	100-41-4	6.66	0.40	16.64	117.81%	1,000.00	24 hr	0.17	170.00	0.04	-100%	22.92	-71%	0.13	-71%
2-butoxyethanol	111-76-2	1.25	-	-	-	1,600.00	annual	1.00	1,600.00	7.83E-04	-100%	2.45E-03	50941.12%	9.03E-06	8576.99%
MAX				16.64	117.81%					2.16	-75%		50941.12%		8576.99%

- Xylene emissions were being reduced from 22.9 lb/hr baseline to 6.7 lb/hr proposed, but due to the change in IRSL, this change was meaningful
- 2-Butoxyethanol baseline emissions were very low, but the screening level is pretty high, so when compared to HP of other baseline ITSLs, the HP was reduced over 100%. However the change in emissions was significant (due to how low the baseline was).
- If we were to modify the permit – would anything change in the requirements – likely not.

EXAMPLE

Table 3 - Predicted Ambient Impact of TACs with Meaningful Increase

Air Permit to Install Application																
Company, Location																
				1st ITSL					2nd ITSL		IRSL					
Toxic Air Contaminant	CAS No.	MAX Emissions (lb/hr)	Intermittent Emission Rate (lb/hr)	Model Results (µg/m ³) / (lb/hr)	PAI (µg/m ³)	Screening Level (µg/m ³)	Averaging Period (µg/m ³)	Percent of Screening Level	Screening Level (µg/m ³)	Averaging Period (µg/m ³)	Model Results (µg/m ³) / (lb/hr)	IRSL PAI (µg/m ³)	Screening Level (µg/m ³)	IRSL Averaging Period (µg/m ³)	Percent of Screening Level	Pass/Fail
ethylbenzene	100-41-4	6.66	0.09	6.36	42.36	1000	24 hr	4.2%	--	--	0.73	0.06	0.4	annual	15.8%	PASS
2-butoxyethanol	111-76-2	1.25		0.73	0.91	1600	annual	0.1%	--	--	--	--	--	--	--	PASS
Intermittent emission rates based 2014 max coating usage; since cumene's intermittent rate is less than 10% of of max emission rate used 10% of max.																
	1 hr	8 hr	24 hr	annual												
Model Results - 2014 application	19.36208	9.91851	6.36368	0.7263												

- For this client – we compared the proposed emissions to 2014 model results, and recalculated the predicted ambient impact to demonstrate that the change in emissions and screening levels were still compliant with Rule 225.
- The MDEQ has “acknowledged” this approach for Rule 285(2)(c)(iii) demonstrations, and is reviewing internally.
- MDEQ understands industry still needs more guidance.

DIFFERENT APPROACHES/IDEAS

INDUSTRY NEEDS TO WORK WITH MDEQ TO PROVIDE EXAMPLES AND SOLUTIONS

- Ask that the Permits sections always provide the permit evaluation to know what emission rates and screening levels were reviewed during the PTI application review.
- In the appendix of PTIs, provide the unitized model results so changes in PAI (lb/hr X model result) can be compared to SL.
- Reevaluate guidance for changes to existing process that takes into account definition of modification – i.e. if there is a decrease in TAC emissions (and no new TACs emitted) and the change does not meet definition of modification, then Rule 201 would not apply.

FORD PERMIT 192-17 (ISSUED 8/15/2018)

IX. OTHER REQUIREMENTS

1. This permit covers automotive stamping, assembly and painting operations for the Michigan Assembly Complex. Changes to these operations or replacement with a different process type are subject to the requirements of R 336.1201, except as disallowed by R 336.1278 or as allowed by R 336.1279 through R 336.1291 or SC IX.3 or 4. (R 336.1201)
2. The Department has determined that compliance with the limits listed in SC I.1 through SC1.8 provides a level of control that is at least equivalent to and not less stringent than the standards in 40 CFR 60.392, et seq. and R 336.1610. Accordingly, compliance with the limitations in this permit meets all applicable requirements of 40 CFR Part 60, Subpart MM and R 336.1610. (R 336.1610, 40 CFR 60, Subpart MM)
3. This permit authorizes any activities including projects involving physical changes or changes in the method of operation to existing emission units that do not require an increase in the emissions limits or performance levels specified in SC I.1 through SC 1.8. As a state only enforceable requirement¹, the changes to the emission unit(s) shall not result in a meaningful change in the nature or quantity of toxic air contaminants emitted from the stationary source. The permittee shall keep on file a demonstration, consistent with AQD Policy and Procedure number AQD-025, or according to the method outlined in SC IX.4. Such activities do not require the facility to obtain any federal or state air permits. (R 336.1201)
4. This permit authorizes projects involving the installation of new emission units that do not require an increase in the emissions limits or performance levels specified in SC I.1 through SC 1.8 under the following conditions:
 - a. As a state-only enforceable requirement, the new emission unit will not result in an exceedance of any air toxics standards found in Rule 336.1226 or Rule 336.1227. The permittee shall keep on file, a copy of all demonstrations that the air toxics impact from the new emission unit(s) will comply with the levels specified in Rule 336.1226 or Rule 336.1227. The permittee may devise its own method to perform this demonstration subject to approval by the department.¹

- Ford has meaningful change language in new permit
- Allows Ford to make changes that are not meaningful
- Demonstrate through modeling that impacts do not exceed screening levels

- b. The new emissions unit will not be a newly constructed or reconstructed major source of hazardous air pollutants as defined in and subject to 40 C.F.R. §63.2 and §63.5(b)(3), National Emission Standard for Hazardous Air Pollutants; and,
- c. The installation of the new emissions unit will not cause the violation of any applicable air requirement.
- d. A demonstration that the new installation meets these criteria shall be kept on site for the life of the new emission unit and made available to the department upon request. The permittee must notify the department of the installation of the new emission unit. This notification must contain the information specified in R 336.1215(3)(c)(i) through (v). Construction of the new emission unit may commence upon submittal of the notice. (R 336.1201)

REMINDER - THINGS TO WATCH OUT FOR

WHEN IN DOUBT TALK TO YOUR INSPECTOR

- REMEMBER - If the Baseline PTI application only included review of noncarcinogens, you cannot substitute/add a carcinogen, and vice versa
- The baseline only changes when you submit a new PTI application; always review the changes against the baseline, even if you did a previous meaningful change analysis.
- Review PTI applications carefully and be aware of carcinogenic TACs that passed based on SRLS; future changes in IRSLS and PTE could exempt you from using any of the meaningful change exemptions – see example 9 in MDEQ guidance document.

THANK YOU

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FISHBECK, THOMPSON, CARR & HUBER
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