

Volatile Organic Compounds (VOCs) in Architectural and Industrial Maintenance (AIM) Coatings

**Asphalt Roofing Manufacturers
Association
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Drivers for taking action on Volatile Organic Compounds

Science

- **VOCs are Precursors to the formation of Particulate matter and Ground-level ozone, ie: smog**

Policy

- **Canada-wide Standards (CWS) for Particulate Matter and Ozone (2000)**
- **Canada-U.S. Ozone Annex (2000)**
- **Government of Canada's Interim Plan 2001 on Particulate Matter and Ozone (2001)**
- **VOCs added to Schedule 1 - List of Toxic Substances under the *Canadian Environmental Protection Act, 1999 (CEPA)* (2003)**

Consumer and commercial products are a significant source of VOC emissions

- **Solvent use is replacing transportation as largest anthropogenic VOC source in most areas of Canada**
 - 2nd largest in 2000;
 - Projected to at least equal by 2010
- **Many consumer/commercial products contain such solvents**
 - Cleaners, Paints, adhesives, coatings, inks

Development of Federal Agenda

- **BACKGROUND** information was collected through consultant studies and industry input
- **MULTI-STAKEHOLDER** consultation was held in **MARCH 2003**
- **PUBLISHED** as a **NOTICE OF INTENT** in *Canada Gazette, Part I* on **MARCH 27, 2004**
 - *Federal Agenda on the Reduction of VOCs from Consumer and Commercial Products*

The Federal Agenda is a descriptive Action Plan

➤ Objective:

- Reduce VOC emissions in Canada By reducing the VOC content of consumer and commercial products

➤ Timeline:

- Overall Program from 2004 through to 2010

➤ Elements:

- Identifies measures to be taken
- Describes implementation approach
- Schedule / timelines for implementation

Key Considerations when the Agenda was developed

- **PROVINCES SUPPORT FEDERAL LEADERSHIP ON PRODUCT STANDARDS**
- **LISTING OF VOCs ON CEPA SCHEDULE 1 allows regulatory approach**
- **U.S. measures will be point of reference**
 - **U.S. EPA**
 - **Ozone Transport Commission (OTC)**
 - **California Air Resource Board (CARB)**

U.S. jurisdictions have been taking action on VOCs in Consumer Products

- **U.S. EPA Promulgated three rules in 1998 for Consumer Products, AIM Coatings and auto refinish Coatings**
- **Ozone Transport Commission (OTC) has model rules in Place and Plan to review in 2006**
- **California Air Resource Board (CARB) has the longest history of Developing VOC rules and is currently working on further reductions**

Definition of Volatile Organic Compound

- **V O C is any volatile organic compound that participates in atmospheric photochemical reactions, excluding the following:**
...
- **exclusion list includes 44 compounds or groups of compounds such as methane, ethane, acetone, Dichloromethane, methyl Chloroform, PCBTF and various CFCs, HCFCs and HFCs**
- **also excludes By Definition carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates and ammonium carbonate**

Architectural and Industrial Maintenance Coatings

AIM COATINGS are:

- **applied to stationary structures, portable buildings, pavement and curbs at site of installation**

AIM COATINGS are NOT:

- **applied in shop environments or to non-stationary structures (airplanes, ships, automobiles)**
- **adhesives**

Activities to Date – AIM Coatings

- **2003 survey of AIM manufacturers and importers**
 - collection of information on current products, sales and VOC content
- **2004 Background Technical Study**
- **March 2005 Discussion Document**
 - outlines proposed elements for regulating VOC content of AIM coatings
- **April 2005 Consultation Meeting**
 - Initial consultation with stakeholders to present proposal and receive feedback
 - Additional consultations to be undertaken

Intent of the AIM Coating Proposal

- **Mandatory VOC content limits on all AIM coatings sold in Canada**
- **would apply to manufacturers, importers and retailers of AIM coatings**

Proposed Categories

- **50 Categories of AIM Coatings are Proposed**
- **Categories Classify Coatings according to:**
 - **measurable characteristics**
 - **Chemical Composition / type of Coating**
 - **recommended use**

Selection of Coating Category

- **COATINGS CLASSIFIED INTO THOSE CATEGORIES THAT BEST DESCRIBE USE/CHARACTERISTICS**
- **IN THE EVENT THAT A COATING IS RECOMMENDED FOR USE IN MORE THAN ONE CATEGORY, CATEGORY WITH THE LOWEST VOC CONTENT LIMIT IS THE ONE WHICH WOULD APPLY**
- **IF COATINGS CANNOT BE DESCRIBED BY ANY OTHER DEFINITION, THEY ARE CLASSIFIED AS FLAT OR NON-FLAT COATINGS**

Proposed VOC Content Limits

- **PROPOSED VOC content limits were selected based on available BACKGROUND information**
- **48 of 50 PROPOSED content limits are consistent with the OTC MODEL Rule (other two consistent with U S EPA National rule)**
- **OTC limits are considered most relevant since they have been most recently DEVELOPED and are currently in use in the U S**

Calculation of VOC Content

- **PROPOSED VOC content limits are intended to apply at the POINT OF APPLICATION OF THE COATING**
- **VOC content should account for recommended thinners**
- **VOCs contained in colourants added to tint bases are not included**

Calculation of VOC Content – cont.

- **The VOC content limits are expressed as „Grams of VOC Per litre of coating, excluding the volume of any water and exempt compounds%o**
- **Calculations used to determine the VOC content are consistent with those in the US EPA National Rule, the OTC Model Rule and CARB Suggested Control Measure.**

Proposed Test Methods

- **The Proposed reference method to Determine COATING is the U S E P A M e t h o d 24, U S C O D e O f F e d e r a l R e g i s t e r, P a r t 60**
- **M a n u f a c t u r e r s m a y u s e M e t h o d 24, f o r m u l a t i o n D a t a o r o t h e r m e a n s o f D e t e r m i n i n g t h e V O C C o n t e n t**
- **I n t h e C a s e o f i n C o n s i s t e n c i e s, t h e M e t h o d 24 t e s t r e s u l t s w o u l d B e u s e d t o D e t e r m i n e C o m p l i a n c e**

Proposed Small Container Exemption

- **Exempts coatings sold in containers smaller than 1 US quart (0.946 L)**
- **This exemption also affects several categories in the AIM regulation that have significant portions of sales in small containers**

Proposed Reporting/Labeling Requirements

- **M**anufacturers and **i**mporters may **B**e required to maintain information on the **V O C** content of their **P R O D U C T S**
- **T**he regulations could contain requirements to include the **D**ate of manufacture, **t**hinning requirements and **V O C** content of the **C O A T I N G** on the **l**abel
- **O**ther **l**abelling requirements could require **s**pecific **d**escriptions to identify the **r**ecommended use for the **C O A T I N G**

What is NOT included...

➤ **Reactivity**

- **Currently Being assessed By U S EPA and CARB as a Basis for VOC Control Programs**
- **Not Being Considered for use in an AIM COATINGS regulation since:**
 - ◆ **Development of reactivity Based regulation would take a significant amount of time and will not afford the necessary short term VOC reductions required**

Complying Marketshare

- **Survey results were used to estimate the Complying marketshare for Proposed categories**
- **Overall, results showed 45% of Products and 50% of sales would Comply with the Proposed VOC Content limits**
- **More Detailed Category Specific Data is Provided in Annex 2 of the Discussion Document**

Emissions Reductions

- **An estimate of the emissions reductions associated with the proposed VOC content limits indicates that implementation of the proposed limits could achieve a 30% reduction in VOC emissions**
- **Using 2010 as a reference year, and assuming a 2% rate of growth, the overall impact of the proposed VOC content limits could be an 18% reduction in emissions from 2002 levels (20.8 kt)**

Effective Date

- **The Proposed effective Date for the regulations has not yet Been established**
- **Environment Canada is seeking industry input on the length of time needed to reformulate products in the Canadian marketplace**

For Additional Information

- **The March 2005 Discussion Document outlines all of the Proposed elements and a table indicating the Proposed VOC content limits**
 - <http://www.ec.gc.ca/nopp/docS/regs/voc/coat/en/discussDOC.cfm>
- **Detailed information on each Proposed category is contained in Annex 2 of the Discussion Document**
 - **Bituminous Roof Coatings 300 g/L**
 - **Bituminous Roof Primers 350 g/L**
 - **Roof Coatings (Non-Bituminous) 250 g/L**

Path Forward for Consultation

- **Feedback on the Proposed elements was invited from stakeholders:**
 - **Over 20 sets of comments received**
 - **Several comments received on:**
 - ◆ **Bituminous roof coatings**
 - ◆ **Bituminous roof primers**
 - ◆ **Roof coatings (non-bituminous)**
- **Preliminary review of comments indicate further work is required**
 - **further research in specific areas**
 - **industry asked to provide additional information to strengthen cost impact analysis**

Path Forward for Regulatory Development

- **A n a l y s i s O f f e e d B a c k O n P R O P O S E D e l e m e n t s (S u m m e r / F a l l 2 0 0 5)**
- **F u r t h e r i n f o r m a t i o n G a t h e r i n g (a s r e q u i r e d) (S u m m e r / F a l l 2 0 0 5)**
- **F O L L O W - U P C O N S U L T A T I O N S (F a l l 2 0 0 5)**
- **P R O P O S E D r e g u l a t i o n s w r i t t e n a n d P U B L I S H E D i n *Canada Gazette*, P a r t I (S P R I N G 2 0 0 6) . P U B L I C A T I O N i s f o l l o w e d B y C O M M E N T P E R I O D (m i n i m u m 6 0 D a y s)**
- **F i n a l R e g u l a t i o n w r i t t e n a n d P U B L I S H E D i n *Canada Gazette*, P a r t II**

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