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Air Resources Board
1001 I Street, 23rd Floor
Sacramento, CA 95814
Attn: Clerk of the Board

Dear Board Members:

3M appreciates the opportunity to provide comments on the Air Resources Board (ARB) Proposed Amendments to the California Consumer Products Regulation and the Aerosol Coatings Regulation, dated September 29, 2006.

3M has a long history of continuous environmental improvements to minimize the impact of our manufacturing processes and products on the global environment. 3M is a US Environmental Protection Agency-recognized industry leader in the area of pollution prevention and in 2005 celebrated the 30th anniversary of its Pollution Prevention Pays (3P) program. 3M is committed to finding technologically feasible ways to reduce the VOC content of its products while continuing to offer Californians effective consumer products.

3M's research and development teams must balance a host of considerations when creating or reformulating products. Effectiveness and customer acceptance are important, of course, but no less important are considerations regarding safety, human health, and the environment (beyond product VOC emissions). From chlorinated solvents to n-hexane, 3M has proactively reduced or eliminated chemicals of concern in many of its products. For example, 3M quit selling chlorinated brake cleaners in the early 1990s, well in advance of most of its competitors.

3M urges the Air Resources Board (ARB) to reconsider the proposed 10% VOC limit for Carburetor or Fuel-Injection Air Intake Cleaners. Significant research and development efforts would be required to determine if a technologically and commercially feasible product can be developed to meet *any* VOC limit below the current standard. 3M believes that even the 20% VOC limit proposed by the Automotive Specialty Products Alliance and its member associations is not commercially or technologically feasible.

Requirements for Carburetor or Fuel-Injection Air Intake Cleaners

- *Purpose:* Carburetor or Fuel-Injection Air Intake Cleaners are used to improve engine (i.e., fuel) efficiency and thereby reduce vehicle emissions (i.e., minimize a vehicle's impact on air quality).
- *Penetration:* Carburetor or Fuel-Injection Air Intake Cleaners need to have an extremely low surface tension in order to penetrate into otherwise inaccessible areas. Traditional solvents fulfill that need.
- *Cleaning:* Carburetor or Fuel-Injection Air Intake Cleaners must effectively clean grease, oil, and a variety of soil contaminants. The right combination of traditional solvents, along with a certain amount of exempt solvents, can dissolve the residues in or on a carburetor or fuel-injection air intake assembly. Ineffective cleaning leads to inefficient combustion, which results in increased vehicle emissions and poor air quality.
- *Compatibility:* Carburetor or Fuel-Injection Air Intake Cleaners must not attack the special "anti-sludge" coatings present on throttle plates, throttle shafts, and numerous other components in the air intake management system and the combustion chamber. These coatings improve the performance of an engine.

Concerns Regarding Water-Based Formulations

- *Penetration:* Water does not have a low enough surface tension to penetrate otherwise inaccessible areas.
- *Cleaning:* The range of contaminants that are directly and quickly solubilized by water-based cleaners is limited.
- *Compatibility:* Water-based Carburetor or Fuel-Injection Air Intake Cleaners need to be alkaline in order to remove carbonaceous residues such as oil and grease buildup. As a result, material compatibility issues are a concern: highly alkaline products can etch aluminum engine components.
- *Customer acceptance:* The presence of water is bothersome when cleaning a carburetor or fuel-injection air intake assembly, as the parts take longer to dry.
- *Safety:* The presence of water in a carburetor or fuel-injection air intake assembly is unacceptable.
    - Water can enter the engine and the engine oil via the air intake manifold, reducing the lubricating properties of the oil (thus increasing engine wear) and inducing corrosion of engine components.
    - When sufficient amounts of water are drawn into the engine through the carburetor or fuel-injection air intake assembly, hydrostatic lock occurs, causing serious engine damage. This is a dangerous and expensive incident.

Concerns Regarding Acetone-Based Formulations

- *Cleaning:* Acetone and other exempt solvents do not effectively clean difficult soils.
- *Compatibility:* Acetone is an aggressive solvent that will degrade many polymeric compounds used as special coatings on engine components. The destruction of these coatings causes contaminants to build up more quickly on the air intake management system and the combustion chamber, adversely affecting engine performance and increasing vehicle emissions.
- *Compatibility:* Likewise, acetone and methyl acetate attack paints used on engine components and in the engine compartment.

Concerns Regarding Soy-Based Formulations

- *Penetration:* Soy-based products tend to be more viscous than traditional solvents and thus cannot penetrate otherwise inaccessible areas.
- *Cleaning:* The range of contaminants that are directly and quickly solubilized by soy-based cleaners is limited.
- *Cleaning:* Soy-based esters leave residues on a carburetor or fuel-injection air intake assembly. These residues can, in fact, be more difficult to remove than the initial contaminants. If a product leaves residues, it is certainly not accomplishing its goal of cleaning the carburetor or fuel-injection air intake assembly.

Again, 3M urges the ARB to reconsider the proposed 10% VOC limit for Carburetor or Fuel-Injection Air Intake Cleaners. 3M believes that this limit is not commercially or technologically feasible. In fact, 3M believes that it will be extremely difficult, if not impossible, to formulate a safe, effective, commercially feasible Carburetor or Fuel-Injection Air Intake Cleaner below the current limit.

3M is concerned that, if effective Carburetor or Fuel-Injection Air Intake Cleaners are not available, technicians will resort to using gasoline, kerosene, or other 100% VOC solvents to fulfill that need. Doing so would be bad for worker health and safety and bad for the environment. Alternatively, technicians may be forced to remove the component from the engine, disassemble it, and dip-soak it, greatly increasing the time and the cost of cleaning a carburetor or fuel-injection air intake assembly.

Should the ARB move forward with any VOC limit below the current standard, it should set an implementation date far enough into the future so that scientifically valid assessments can be conducted regarding the commercial and technological feasibility of the adopted VOC limit. This would allow time to amend the adopted VOC limit if it is found to be infeasible, before it is implemented. Studies conducted to date have not adequately taken into consideration the issues outlined above.

Thank you for your consideration of 3M's comments. Please contact me via phone (651-736-5932) or email (cfjacobson@mmm.com) if you have any questions.

Sincerely,

Catherine F. Jacobson, Ph.D., DABT
Toxicology Specialist