

INTRODUCTION OF VEHICLE INTERIOR AIR QUALITY (VIAQ) TEST METHOD IN KOREA

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◆ Since 2004, Sick Car Syndrome began a social issue in Korea

- ✓ Unique new car smell, Customer complaint
- ✓ Chemical materials emitted from interior materials
- ✓ Demands for more pleasant driving environment



◆ Korea Government's Vehicle Interior Air Quality Management Purposes

- ✓ Encouraged to use the good interior materials
- ✓ Proper Management to the Automobile manufacturer
- ✓ Provide better driving environment to the consumer.

- ◆ The progress of rule making
- ✓ 2005~2006 **KATRI** Research on new car Indoor Air Quality investigation and driver risk assessment of new vehicles
- ✓ 2007 **Notification of MOLIT** 「Management Guidelines of Vehicle Indoor Air Quality」
- ✓ 2011~present Announced the compliance test results of new vehicle models every year to the public
 - “ In 2011, 4 new models exceeded the toluene limit of VIAQ
 - “ After 2012, All new models comply with the limit of VIAQ
- ✓ 2012 **Motor Vehicle Management Act** was amended to add VIAQ(2012.12.18)

- ◆ Major considerations for the test method developments at Korea
 - ✓ Management Targets : Vehicle type, Substance type
 - ✓ Test Conditions
 - “ Environmental conditions: Temperature, Doors closed Time
 - “ Status of Vehicle : parking(ambient, hot), driving, ventilation(included HVAC)
 - ✓ Finding the optimized test method for easy and accurate test
 - “ Use a minimum of facilities and devices
 - “ Short Testing Time

- ◆ Specification and method for the determination of VIAQ
 - ✓ Management Targets
 - 〃 Vehicle type : Light duty vehicle
 - 〃 Substance type : Select the same substance in sick house syndrome
 - ✓ Environmental conditions
 - 〃 Test Temperature : 25 °C
 - * The average temperature in Summer(August) during 30 years(1971-2000) : 24.9 °C
 - ** The most drivers use a vehicle within 20 ~ 30 °C cabin temperature
 - 〃 Doors closed time : 2hours
 - * Recommended driving time(stay every 2hrs) for the long distance driver in Korea
 - ** 2006 New car driver survey results : about 2.2 hours

- ◆ Specification and method for the determination of VIAQ
- ✓ Status of Vehicle : parking at 25 °C (ambient mode)
 - * In summer parking, the 94.6% of driver is driving after the ventilation or using A/C
 - ** Using a air conditioning fan or window slightly open (10 ~ 15 cm) when driving open while driving, Within 2-3 minutes more than 90% of the initial concentration decrease
 - *** For the reason as above, Not adopt hot temperature parking condition and driving mode
- ✓ Finding the optimized test method for easy and accurate test conditions
 - * Determined with reference to the test conditions
 - ** Minimize restrictions, such as a test site and facilities

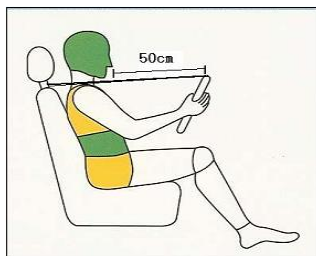
◆ The main contents of VIAQ Standard

✓ Scope of Application

- ” Passenger vehicle, van and bus(Light Duty)
- ” Not elapsed more than 4 weeks(14-28 days) from the date of manufacture

✓ Measurement Substances

- ” Formaldehyde, Benzene, Toluene, Xylene, Ethylbenzene, Styrene, and Acrolein (7 substances)

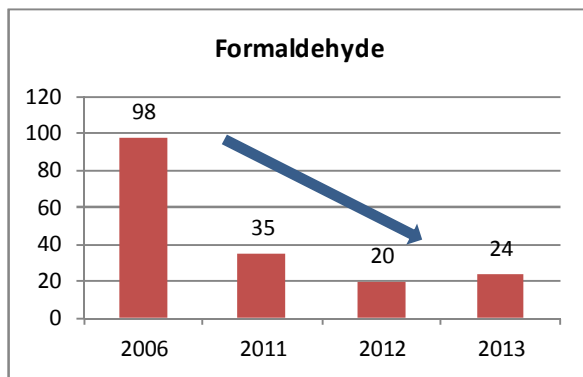


Time	Temp stabilize Min. 12hr	Ventilation 30min	Close door Sealing 2hr	sampling 15min
Cabin Temp	25°C	25°C	25°C	25°C

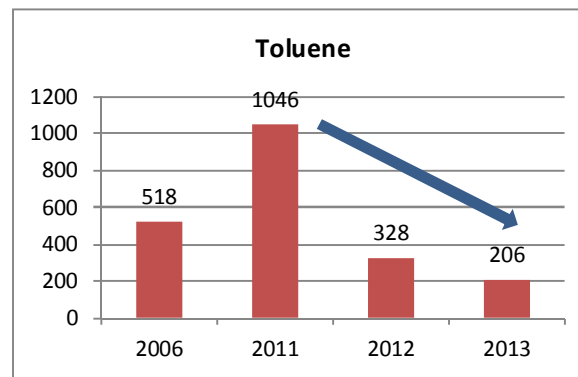
● Effect of VIAQ management in Korea

- ✓ After VIAQ regulations, vehicle indoor air quality levels drastically improved
- ✓ VIAQ management regulation is proven to be effective to reduce VOCs inside new vehicles

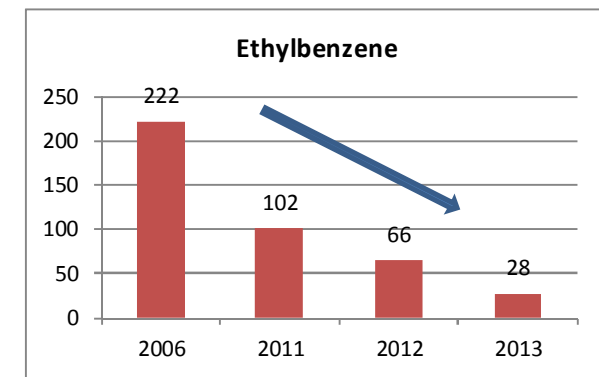
(* VOC : Volatile organic compound)



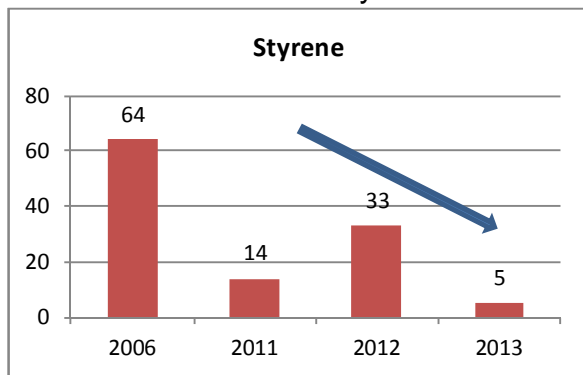
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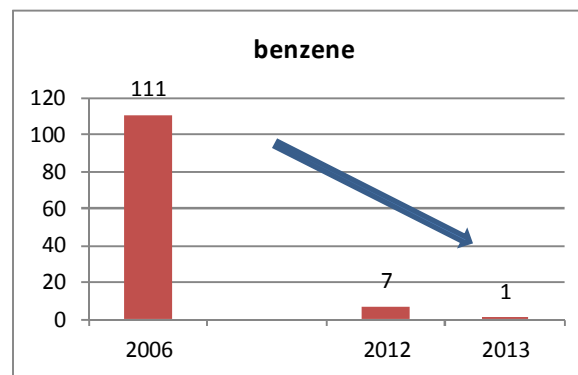
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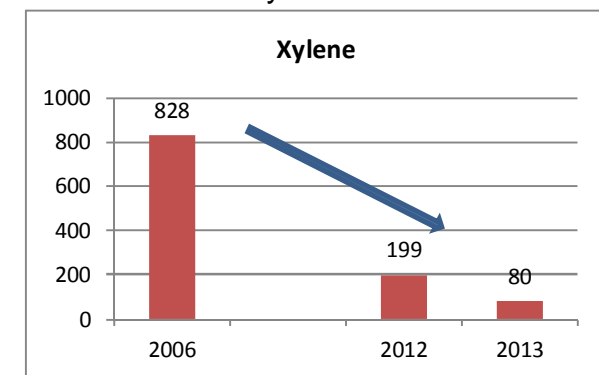
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<benzene>



< Xylene>

Thank you very much !

