

Information of Korea Cases on Vehicle Indoor Air Quality (VIAQ)

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- 1. Background**
- 2. Case Study in Korea**
- 3. The effects of VIAQ Regulation**
- 4. Conclusion**

- Increasing concerns about **Vehicle Indoor Air Quality(VIAQ)**
 - Various chemical materials to harmful to human body are emitted from vehicle interior materials
- Researching & Managing vehicle indoor air quality by many countries
 - Netherlands, France, Sweden, Germany, Japan, USA, China, Korea
 - ISO Standard(12219-1:2012), China(GB/T 27630-2011), Korea(Notification No. 2007-539)



**Need to unified regulation on vehicle indoor air quality(VAIQ)
to protect driver's health and safe driving**

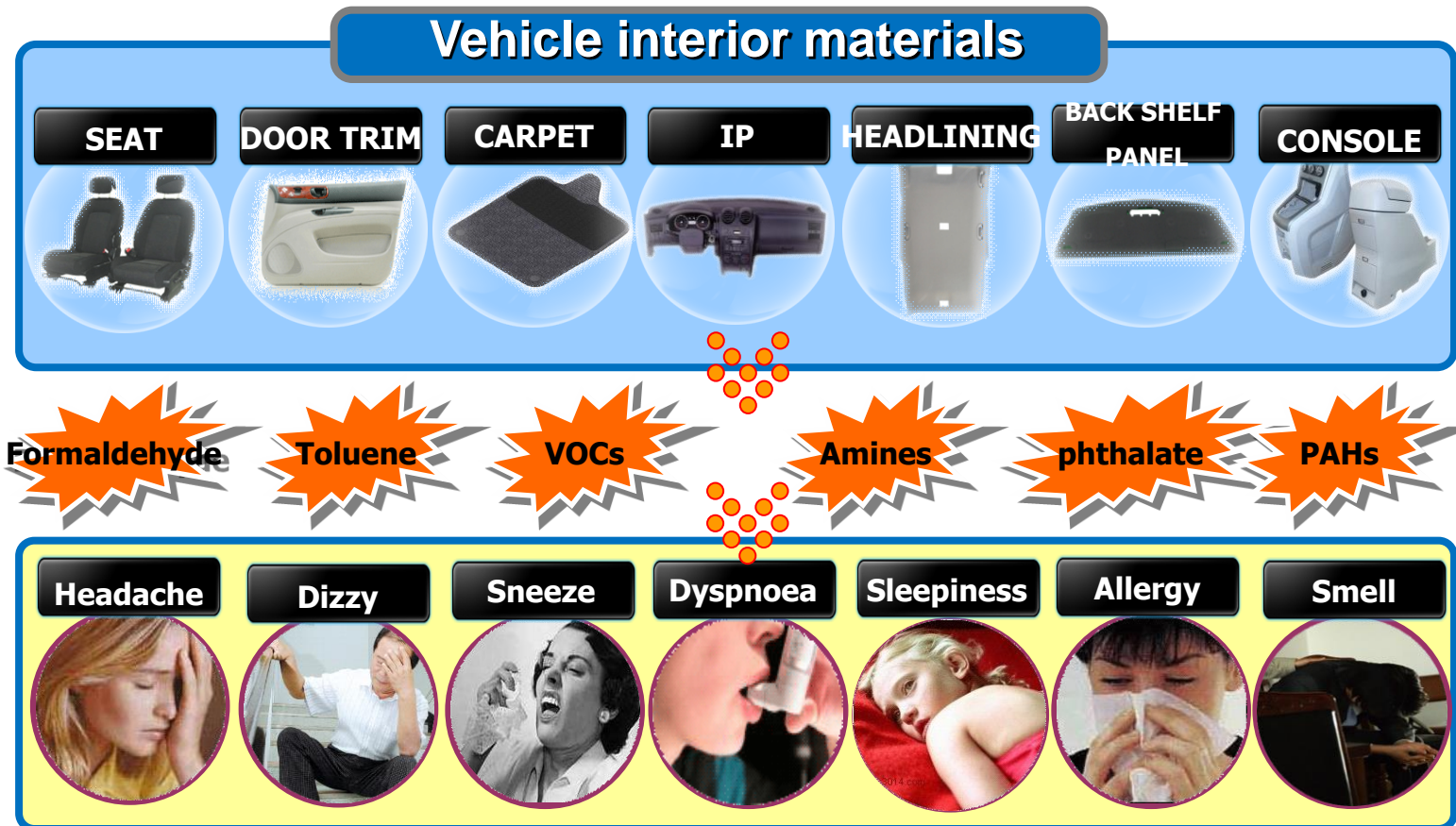
- Sick House Syndrome & Sick Car Syndrome : became a social issue
- ✓ New car driver feel a headache, eye irritation, sneeze and so on
- ✓ The main cause is the chemical materials that emitted from vehicle interiors



<Media :KBS news “Hazardous substances in new car interiors”>

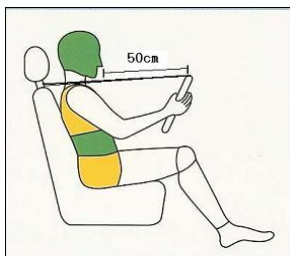
Interview : I feel slight headache and dizzy...

- Surveyed 800 people who purchased a new car
- ✓ Feeling the physical symptoms under driving : 51.5%,
- ✓ Headache 31.5%, Eyes irritation 31%, Sneeze 15.8%, Fatigue 11.1%...



● Specification and method for the determination of VIAQ

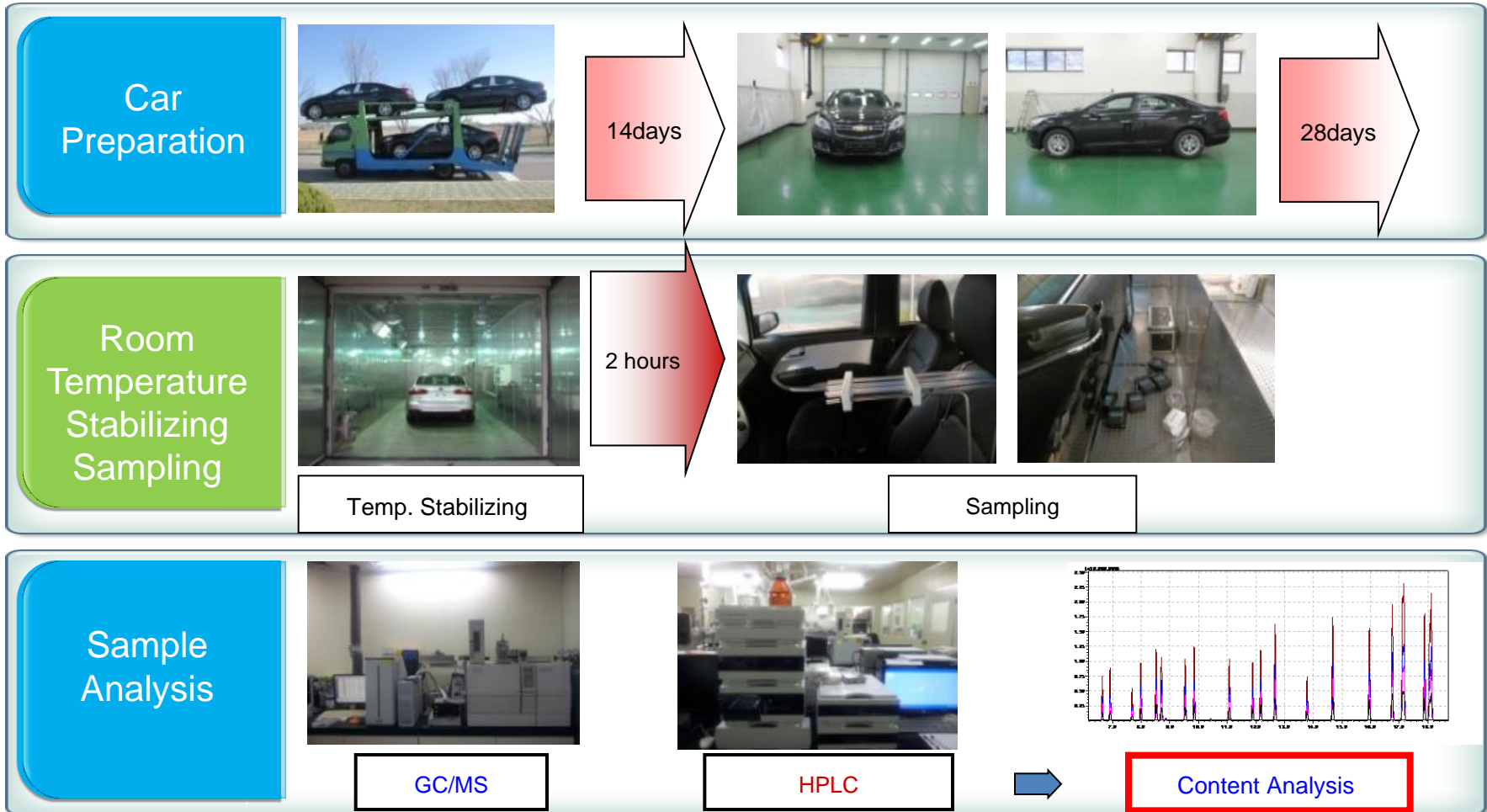
Test measurement method



Time	Temp stabilize Min. 12hr	Ventila tion 30min	Close door Sealing 2hr	sampling 15min
Cabin Temp	25℃	25℃	25℃	25℃

- ◆ Temperature : 25 ℃ (The average temperature in summer in Korea)
- ✓ The hottest month, the average temperature in August 30 years (1971–2000) : 24.9 ℃
- ◆ Door close time : 2hour (Recommended by the long running time)
- ✓ 2006 New car driver survey results : about 2.2 hour
- ◆ In summer parking, the 94.6% of driver is driving after the ventilation : Not considered High temperature mode and driving mode
- ✓ 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

- Verification test whether automobile manufactures comply with guideline



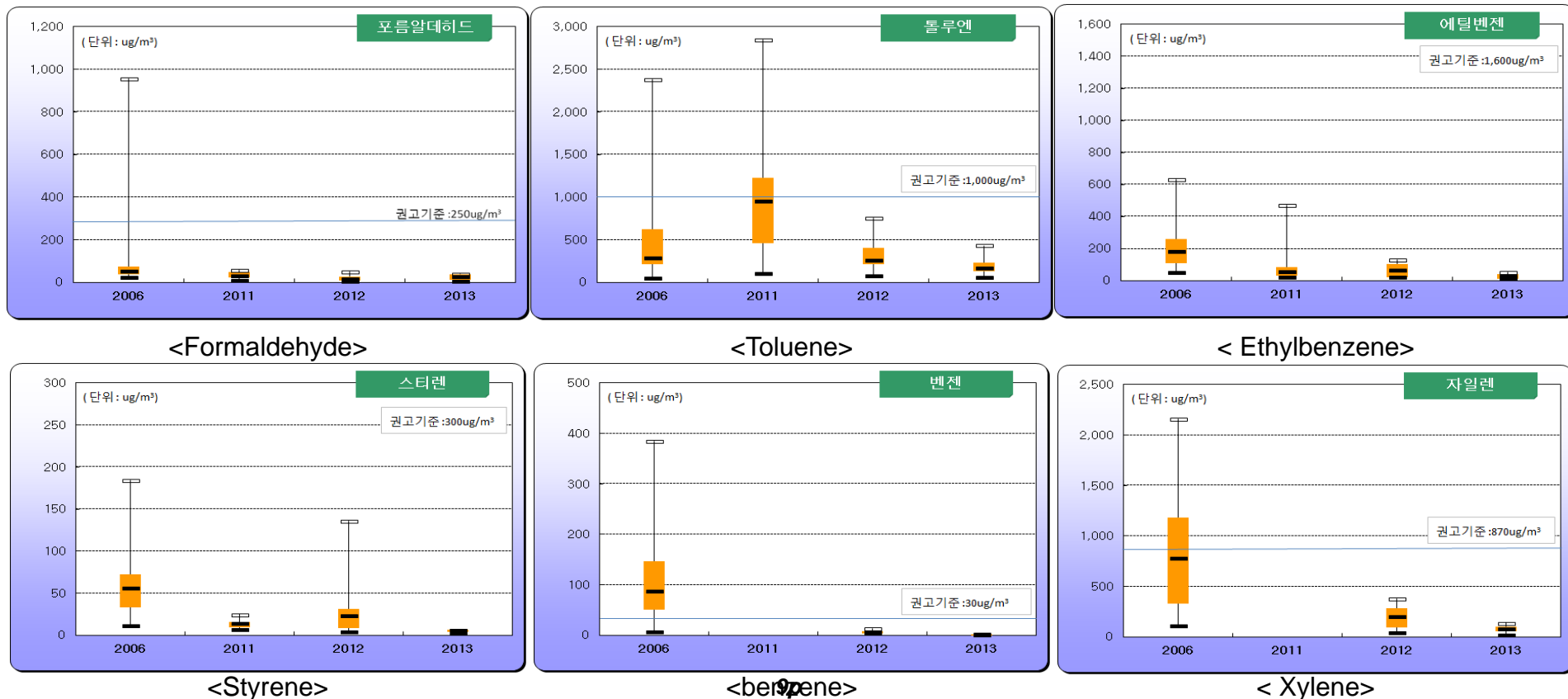
The Effects of VIAQ Regulation

- Verification Test results of VIAQ by year

YEAR	ITEM	Formaldehyde	Toluene	Ethylbenzene	Styrene	benzene	Xylene
2006 (36 model) Before VIAQ regulation	averg	98	518	222	64	111	828
	Min	22	51	49	12	7	112
	Max	955	2384	632	185	385	2164
2011 (9 model) AFter VIAQ regulation	averg	35	1046	102	14	-	-
	Min	8	108	20	7	-	-
	Max	56	2846	470	25	-	-
2012 (8 model) AFter VIAQ regulation	averg	20	328	66	33	7	199
	Min	4	85	18	4	5	45
	Max	49	753	131	136	13	379
2013 (4 model) AFter VIAQ regulation	averg	24	206	28	5	1	80
	Min	5	65	8	3	1	21
	Max	38	430	51	7	3	140

The Effects of VIAQ Regulation

- This graph shows a comparison to 2006(Not Apply) and 2011~2013(VIAQ)
 - ✓ After the VIAQ regulation , Vehicle indoor air quality levels improved
 - ✓ VIAQ management regulation that this effect is confirmed



- To protect driver and passenger's health and safe driving, Korea was conducted VIAQ regulation since 2011
- After the VIAQ regulation, Vehicle indoor air quality levels improved that this effect is confirmed
- Need to unified regulation on vehicle indoor air quality(VAIQ) to protect driver's health and safe driving

Thank you very much ! !

