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Hardlines

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Volatile Organic Compounds (VOC) in Automotives

What are Volatile Organic Compounds?

Definitions of Volatile Organic Compounds (VOC) vary from country to country. For Europe, the vapor pressure of VOC at 293.15 °K being higher than 0.01kPa. For Australia, the boiling point of VOC is under 200 °C. In general, VOC is any compound containing at least one carbon, except carbon monoxide and carbon dioxide. It has high vapor pressure and low boiling point. It easily vaporizes in room temperature. Common VOC includes aldehyde, benzene, methylbenzene and xylene etc.

In light of growing concern over health and environmental protection, the automotive industry has augmented the "environmental" features of their products, in addition to focusing on safety and energy efficacy. Government bodies from over the world are now formulating respective policies in a bid to regulate the air quality inside the vehicle. For instance, China is compiling "the Regulations of Air Pollutant Content and Measurement in Vehicle Compartment".

The task force has recently conducted an analysis of inner air quality of different car models, in which 40 different VOC were identified in the car compartment. The main VOCs found were formaldehyde, ethyl butanol and different types of benzene (methylbenzene and xylene) etc, in all of which Dimethylbenzene accounted for 15 to 20%. With reference to the respective toxicity and density, formaldehyde, methylbenzene, dimethylbenzene, isocyanate and naphthalenes were amongst the main pollutants.

With the Regulation of Air Quality inside the Vehicle still underway, China is now counting on the current Regulations for Indoor Air quality in assessing the air quality in vehicle compartment. Across the world, automotive manufacturers are scrambling to advance their technology so as to improve the quality of the car accessories, components and materials.

In Europe and US voluntary requirements are defined by nearly all automotive manufacturers. Requirements and testing methods are client specific and may differ from company to company. But all have in common to control and reduce the content of VOC

Dedicated to social responsibilities and environmental protection, SGS is an accredited partner for several automotive manufacturers and has a partnership with those companies since years. Armed with global experience and new technology, SGS is competent in wide range of testing services from odor, volatile organic emission (e.g. benzene, methylbenzene, xylenes, and toluene) screening, fogging test in automotive interior material and air quality in automotive compartment. Furthermore, we are able to screen the emission in automotive interior material by thermo desorption GCMS and identify substances behind the emission. Using these data a lot of different hazardous substances could be determined in one analytical process

WHAT VOC CAN DO TO OUR HEALTH

Acute illnesses – Short of breath, skin, nose and eye irritation, dry throat, sneezing, vomiting, nose bleeding, breathing difficulty, body imbalance, headache.

Chronic illnesses – heart disease, asthma, damage to liver, kidney, lungs and central nerve system

Even worse, it may cause cancer or gene mutation

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