

汽油中甲缩醛含量检测方法-----气相色谱法

Detection method of gasoline methylal content – gas chromatographic method

On 15 March 2015 3.15 exposure of the inferior synthetic methylal added to gasoline, caused strong repercussions in the community, now methylal basic situation is briefly described as follows:

Methylal is clear colorless volatile flammable liquid, chloroform and pungent odor. On the mucous membrane irritation, there is the role of anesthesia. Inhalation of vapors can cause nasal and throat irritation; high concentrations of inhaled dizziness, etc.. Eye damage, damage for several days. Prolonged skin contact can lead to dry skin. Mainly used in pesticide formulations, leather and automotive polishing agent, air, etc.. Does not apply to the addition of gasoline. But because of methylal price is low (only about half of the price of petrol), and gasoline and the mutual solubility, driven by the interests, some private adjustable combined enterprise privately methylal is added to gasoline, to consumers caused economic losses.

Methylal and gasoline blending, will cause a series of problems, mainly reflected in: (1) methylal itself octane value only 76, added to gasoline, will significantly reduced gasoline octane value, caused gasoline engine knock knock cylinder. If of methylal with low heat value, 4.4% of the only regular gasoline and gasoline join methylal, will cause a decrease in the power, fuel consumption increase. The methylal have swelling and corrosion on plastic parts. Therefore, "GB17930-2013" gasoline vehicle specified in methylal not artificially added gasoline vehicle.

Current car with gasoline in the national standard although the provisions shall not be artificially by adding methylal, but in the technical requirements of the standard did not to be included in the methylal, there is no corresponding gasoline methylal testing national standards or industry standards.

Tengzhou City Xiangying Analysis Technology Co., Ltd., general manager of Wang Xiaoying led the research team, through practice and exploration, developed the gasoline methylal method for determination of the contents of gas chromatography, fill gaps in the lack of standards. To provide law enforcement and inspection standards for the inspection and control of product quality and the supervision and inspection of law enforcement agencies in the petrochemical enterprises, and will be of great significance.

2015年3月15日的3.15晚会曝光了劣质调合汽油中添加甲缩醛的情况，引起了社会各界强烈反响，现将甲缩醛基本情况简要介绍如下：

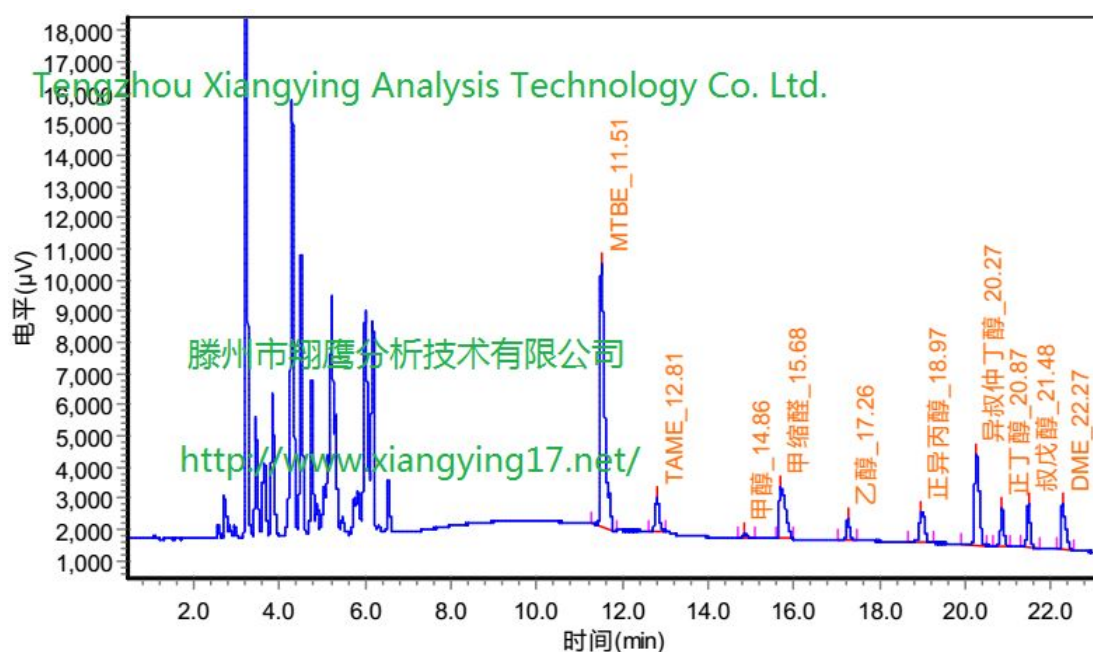
甲缩醛为无色澄清易挥发可燃液体，有氯仿气味和刺激味。对粘膜有刺激性，有麻醉作用。吸入蒸气可引起鼻和喉刺激；高浓度吸入出现头晕等。对眼有

损害，损害可持续数天。长期皮肤接触可致皮肤干燥。主要用于杀虫剂配方、皮革和汽车上光剂、空气清新剂等。并不适用于添加到汽油中。但由于甲缩醛价格低廉（只有汽油价格的一半左右），与汽油又有一定的互溶性，受利益驱使，一些私人调合企业私自向汽油中添加甲缩醛，给消费者造成经济损失。

甲缩醛与汽油调合后，会导致一系列的问题，主要表现在：①甲缩醛本身辛烷值只有76，加入到汽油中，会明显降低汽油的辛烷值，引起汽油发动机敲缸爆震。②甲缩醛热值较低，只有普通汽油的4.4%，汽油中加入甲缩醛，会引起动力下降，油耗增加。③甲缩醛对塑料件具有溶胀和腐蚀作用。因此，GB17930-2013《车用汽油》中明确规定车用汽油中不得人为加入甲缩醛。

目前车用汽油国家标准中虽然规定不得人为加入甲缩醛，但在标准的技术要求中并没有将甲缩醛列入，目前也没有相应的汽油中甲缩醛检测国家标准或行业标准。

滕州市翔鹰分析技术有限公司王晓莹总经理率领科研团队，经过实践摸索，研发出《汽油中甲缩醛含量检测方法——气相色谱法》，填补标准缺失的空白。为石化企业产品质量检测控制及执法机关的监督和检查提供执法依据和检验标准，将具有重要的意义。



甲缩醛和醇醚类氧化物谱图

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The minimum detection limit: $-12 = 2.5 \times 10^{-12}$ g/s (n-C16)
Linear range: 107 (+ 10%)

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线性范围：107 (±10%)