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The study application of the complete set of  
technology of the industrialization of the  
methanol gasoline  
甲醇汽油产业化成套技术研究与应用

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# Syllabus 提纲

- The technology of prepare 调配技术
- Product, service, concept & brand 产品、服务、理念、品牌的综合设计与实施技术
- Set up the industrialization standard 产业化成套技术系列标准的制定
- The study on the problem of adaptability between fuel, automobile and the system of transport and confect 燃料、汽车、输配系统适应性问题研究与解决方案
- The study on policy and regulations 政策法规的研究、制定与实施

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# The technology of prepare 调配技术

- The technology of preparing denaturant  
添加剂配制技术
  - The technology of preparing denatured  
fuel methanol 变性燃料甲醇配制技术
  - The technology of preparing the  
methanol gasoline 甲醇汽油配制技术
  - The equipment 设备设施工艺技术
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# The technology of preparing denaturant 添加剂配制技术

- The polarity of methanol is very strong. The dissolution between methanol and gasoline is impacted by quantity of methanol, water, component and temperature, et al. By using denaturant the dissolution will be better. The denaturants used often are cymene and isobutyl alcohol, et al.
- 甲醇是极性很强的物质，它与汽油的相溶性受加入量、水分、组份、温度等的影响，在混合燃料中加入甲醇汽油添加剂能大大改善甲醇与汽油的互溶性。常用的助溶剂有异丙醇、异丁醇等。

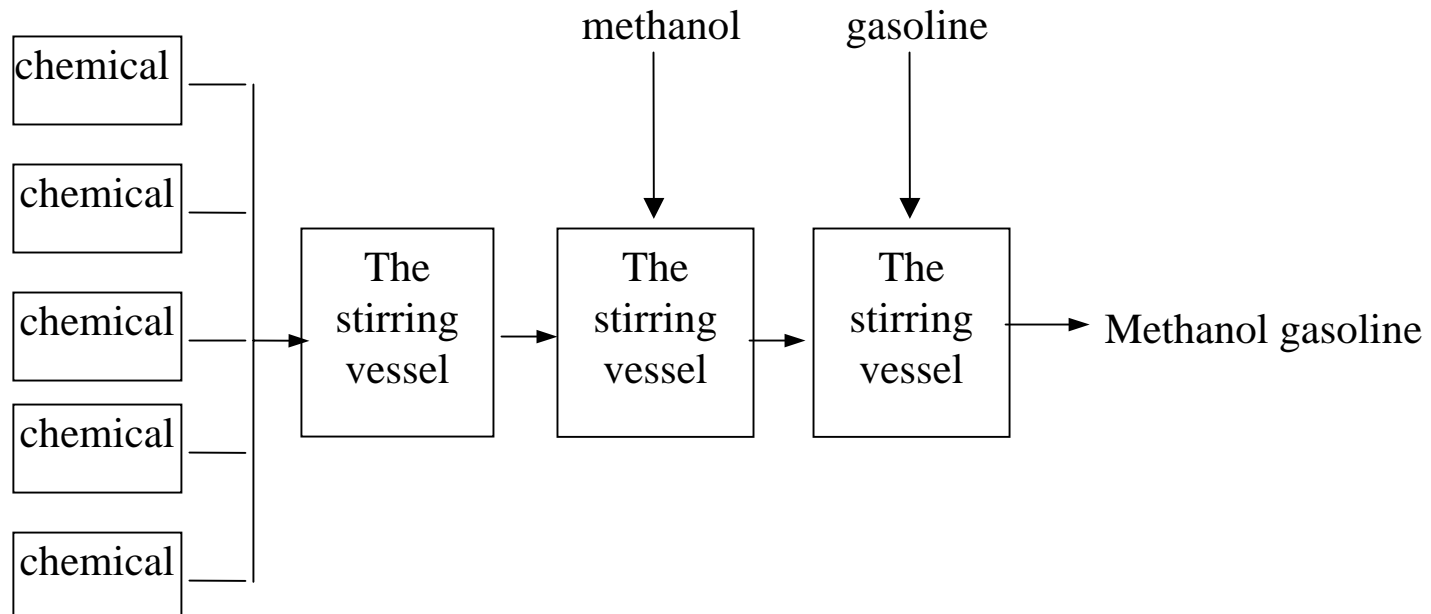
# The technology of preparing denaturant 添加剂配制技术

- Add chemicals which are used to prepare denaturant into the stirring vessel according to process conditions.
- Cool them to some temperature and keep this temperature.
- After mixing round them, add into another chemical.
- Then heat the denaturant to some temperature and mix round.
- When the liquid become transparent, the liquid is the denaturant.
- 往搅拌釜内按加料顺序和工艺条件，定量加入高级醇类等添加剂配制储剂，冷却至一定温度下保温，充分搅拌后，再加入腐蚀抑制剂等，升至一定温度下充分搅拌，直至成为均匀透明的液体，制成甲醇汽油添加剂。

# The technology of preparing denatured fuel methanol 变性燃料甲醇配制技术

- Add the methanol and the denaturant into the stirring vessel. By using circulating pump mix round them, then deposit this liquid. Now the denatured fuel methanol is prepared.
- 将甲醇与甲醇汽油添加剂按一定比例定量加入调合罐，利用调合冲击力及循环泵循环搅拌，使其充分混合，达到混溶，沉降静止后，制成变性燃料甲醇。

# The technology of preparing the methanol gasoline 甲醇汽油配制技术



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# The equipment 设备设施工艺技术

- spurt prepare 喷溅调配
  - tank car prepare 罐车调配
  - pipeline prepare 管线调配
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# Product, service, concept & brand 产品、服务、理念、品牌的综合设计与实施技术

- **product**产品: the methanol gasoline for motor vehicles 车用甲醇汽油
- **service**服务: there was never a satisfying service yet we just keep trying hard 用户至上, 永远没有满意的服务, 但我们一直努力
- **concept**理念: honesty, exceed, unlimited creation; **brand, team, unlimited development** 诚信、超越、创新无极限; 品牌、团队、发展无极限
- **brand**品牌: Huadun华顿

# Set up the industrialization standard 产业化成套技术系列标准的制定

- A standard is definitely necessary to ensure the methanol gasoline's production quality control, meanwhile standardization is also a key point for applying the permission to launch to market.
- The methanol gasoline's development called for the establishment of the relevant standard in this industry.
- A standard can enhance the clients, engine manufacturer and other correlative groups' confidence, not to mention the profits it brings to the economy health and environment, thus it would undoubtedly became a milestone in the industrialization process.
- 甲醇汽油的生产应该有标准作指导来保证其品质，同时标准化也是市场准入的一个重要条件，甲醇汽油的发展刺激着甲醇汽油标准的建立。除去经济、健康和环境方面的好处外，标准的建立增强了甲醇汽油使用者、发动机生产商和其他团体的信心，成为其商业化应用的一个里程碑。

# Set up the industrialization standard

## 产业化成套技术系列标准的制定

- *M5, M15 the methanol gasoline for vehicle* M5、M15车用甲醇汽油
- *fuel methanol for vehicle* 车用燃料甲醇
- *Denatured fuel methanol* 变性燃料甲醇
- *Methanol gasoline for motor vehicles* 车用甲醇汽油
- *Blending component gasoline of methanol gasoline for motor vehicles* 车用甲醇汽油组分油
- *Methanol diesel oil for diesel motor* 压燃式内燃机用甲醇柴油
- *The security regulation of methanol fuel* 甲醇燃料安全管理规范
- *The supplemental provisions of <The design specification of oil depot> for prepare establishment of methanol gasoline for motor vehicles* 《石油库设计规范》车用甲醇汽油调配设施补充规定

# The study on the problem of adaptability between fuel, automobile and the system of transport and confect 燃料、汽车、输配系统适应性问题研究与解决方案

- cauterization of material,
- air lock
- startup in low temperature
- the drive and oil wear, and so on
- The study on the problem of adaptability between fuel, automobile and the system of transport and confect
- 甲醇汽油还存在一些问题，诸如对某些塑料、橡胶件的溶胀，对部分金属材料的腐蚀，高温条件下的气阻，低温条件下的冷启动，行车动力性，油耗以及对水分含量要求严格等，这些问题在一定程度上影响了车用甲醇汽油应用范围的进一步扩大。因此组织开展甲醇燃料、汽车、输配系统的适应性问题研究，并针对存在的问题提出解决方案，是车用甲醇汽油产业化过程中的重要基础性工作之一。

# The study on policy and regulations

## 政策法规的研究、制定与实施

- As the methanol gasoline is a new form energy source, support and adaptation from the government's policy have crucially influenced its development.
- The document NO.54 [2002] that was released by the Shanxi provincial government office specified four cities as the testing area, listed all the authorized suppliers and set up encouraging policies.
- A series relevant policies and laws have been established under the cooperation of so many departments, so far three documents have been made from the Shanxi provincial government office.
- 甲醇汽油作为一种新型替代能源，必须有政府政策的支持与协调。山西省在甲醇汽油推广文件中，指定了变性燃料甲醇供应单位，制定了相关优惠政策。以政府为牵头单位，各职能部门积极参与配合，发挥其应有的作用，制定了一系列政策法规。到目前为止，由省政府办公厅推动我省甲醇燃料产业化推广进程的文件就达3个。

# Conclusion and prospect 总结与展望

- The 5 subject discussed above build up the main truss of the methanol gasoline industrialization technology. Through further research and practice, the methanol gasoline industry has gained some achievements in Shanxi province.
- During its three-years-testing generalization, 100,000 tons of the methanol gasoline has been sold, 5,000,000 times vehicle injections has been done. With the effort from every department, we believe there is a brighter future ahead.
- 上述五个方面问题的研究与解决构成甲醇汽油产业化成套技术的总体构架。通过深入研究，并在实践中得到应用，甲醇汽油产业在山西省取得了一定成绩。甲醇汽油在山西省产业化示范推广应用3年，共销售甲醇汽油10万多吨，加注车辆为500万辆次。相信通过各方面的努力，甲醇燃料产业一定有更大的发展。

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Thank you!

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