

燃料着火性对增压中冷柴油机瞬态工况排放的影响

孙万臣, 王忠恕, 李国良, 刘忠长, 解方喜, 杨继蕊

吉林大学 汽车工程学院, 长春 130022

收稿日期 2007-4-11 修回日期 2007-8-26 网络版发布日期 2008-6-27 接受日期 2007-9-6

摘要 应用自行开发的瞬态工况控制系统及排气采集装置, 试验研究了不同着火性的燃料对车用增压中冷柴油机瞬态工况下排放特性的影响。研究表明, 适当提高燃料十六烷值可有效降低HC和NO_x排放。在稳态工况下, 十六烷值由40增加到66时, 在1800 r/min低负荷工况下HC排放降低62%; 对于CO排放及消光烟度, 十六烷值存在一个最佳值。瞬态工况排放与稳态工况存在明显差异, 在恒转速增负荷工况下, 随着负荷的增加, HC和CO排放及烟度迅速上升, 然后降低趋于一稳定值, 且随着瞬变率的增大, CO排放和消光烟度峰值上升; 增加燃料十六烷值, 可明显降低中等转速增负荷工况下的CO和HC排放及消光烟度; 在高速增负荷工况下, 十六烷值为66和55, 燃料的排气烟度基本相近。

关键词 [动力机械工程](#); [柴油机](#) [燃料特性](#) [十六烷值](#) [瞬态工况](#) [排放](#)

分类号 [TK421.5](#)

Effects of fuel cetane number on emissions from a turbocharged and intercooled diesel engine under transient operating conditions

SUN Wan-chen, WANG Zong-shu, LI Guo-liang, LIU Zhong-chang, XIE Fang-xi, YANG Ji-rui
College of Automotive Engineering, Jilin University, Changchun 130022, China

Abstract The effect of fuel cetane number on the emission behavior from turbocharged and intercooled diesel engine were investigated under steady and transient operating conditions with a self made special transient operation control and exhaust measurement system. The high cetane number fuel can improve HC and NO_x emissions. Under 1800 r/min, low load operating conditions, when the fuel cetane number increases from 40 to 66, HC decreases by 62%. To improve the CO and opacity smoke emissions, the fuel cetane number exists an optimum. The emission behavior from diesel engine under constant speed increasing torque transient operating conditions are different with that under steady operating conditions, and with the increase of engine torque changing rate HC, CO and opacity smoke emissions all rise. The high cetane number fuel can improve CO, HC and opacity smoke emissions under middle speed operating conditions. Under the high speed increasing torque operating conditions, the two fuel cetane numbers 66 and 55 have no difference on opacity smoke emission.

Key words [power and machinery engineering](#) [diesel engine](#) [fuel property](#) [cetane number](#) [transient operating condition](#) [exhaust emission](#)

DOI:

通讯作者 刘忠长 liuzc@jlu.edu.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(572KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [复制索引](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ 本刊中 [包含](#)
[“动力机械工程; 柴油机”的](#)
[相关文章](#)

▶ 本文作者相关文章

- [孙万臣](#)
- [王忠恕](#)
- [李国良](#)
- [刘忠长](#)
- [解方喜](#)
- [杨继蕊](#)