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Interfacial Mechanical Properties of Single-chamber Dual Thrust Grain for Modified Double-based Propellant

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Abstract: The mechanical properties of single-chamber dual thrust grain were studied especially on the interface of the two propellant grains. The tensile strength and the elongation of propellants with different compositions prepared by different technologies were measured at 20 ℃,50 ℃,and −40 ℃. The surface appearance and the element distribution on the failure surface were analyzed by scanning electron microscopy (SEM) and X-ray photoelectron spectrum (XPS). Results show that the interfacial mechanical properties are close to that of cast propellant,and the mechanical properties of the interface has almost no effect on the whole mechanical properties of propellant. Al_2O_3 powders,one of the components in the propellant,are found to cumulate around the interface.

Key words: physical chemistry; double-based propellant; single-chamber dual thrust grain; interface; mechanical property
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中国化学会第五届全国化学推进剂学术交流会通知

由中国化学会主办的中国化学会第五届全国化学推进剂学术交流会将于2011年9月上旬在大连举行。本届会议由中国科学院大连化学物理研究所承办。

本届会议的主题是：**高能燃料科学与技术**

征文范围：

1、化学推进剂的研究进展与发展前景；
2、推进剂配方研制技术,包括绿色化学推进剂、凝胶/膏体推进剂、高能/吸热型/高密度碳氢燃料、氟胺类推进剂、高氮材料、高能富燃料推进剂、高能量密度物质,等等；
3、推进剂的分析测试、发动机推进技术及催化剂技术、理论计算；
4、推进剂安全防护、毒理及病理研究,污染控制与三废处理等。

征文要求：

1、论文观点明确,数据真实,文字精练、流畅,图表清晰,未在国内外公开刊物和全国性学术会议上发表过；
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4、论文通过会议网站在线投稿,根据在线投稿的说明,选择稿件主题与投稿类别；
5、征文截止时间为2011年6月30日。

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