

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	CERDEC
TOPIC NUMBER	A06-096
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-096-0832
TITLE	Advanced Logistics Fuel Desulfurization and Reforming System for Fuel Cell Auxiliary Power Units
PROJECT MANAGER	Merk Fokema (508) 481-5058 fokema@aspensystems.com
COMPANY	Aspen Products Group, Inc. 186 Cedar Hill Street Marlborough MA01752 Minority Owned: Yes Veteran Owned: No Number of Employees: 8
KEYWORDS	desulfurization, reforming, hydrogen, fuel cell, partial oxidation, JP-8
ABSTRACT	The objective of this program is to develop and demonstrate an advanced logistic fuel processing system that utilizes a novel regenerable desulfurization absorbent. The sulfur absorbent will operate efficiently at ambient pressure and be readily regenerable through exposure to air. The proposed fuel processor will integrate the desulfurization technology with a reformer capable of operation in partial oxidation and autothermal reforming modes and an efficient water recycle subsystem and be capable of startup in less than thirty minutes. The reformat produced by the system can be utilized in a proton exchange membrane fuel cell following additional gas cleanup or it can be directly utilized in a solid oxide fuel cell.
BENEFITS	A logistic fuel processing device with the proposed characteristics would have wide ranging applicability to power generation via PEM and solid oxide fuel cells in stationary and mobile applications. Many groups would benefit from the accelerated introduction of fuel cell power plants into commercial, industrial and military markets. Introduction to the military market would be particularly enabled by the technology, as logistics fuels, both domestic and foreign, contain high concentrations of sulfur and yield reformat that is hard to process to fuel cell feed requirements via other technologies. Replacement of conventional power generating devices with fuel cells will have numerous benefits to the military, including reduced fuel consumption, reduced operating costs, improved portability and reduced thermal and acoustic signatures. From a broader perspective, widespread use of fuel cells will increase national energy efficiency, resulting in reduced environmental damage and reduced dependence on foreign sources of energy.