

SBIR 06.2 PHASE I - AWARD DETAILS	
ORGANIZATION	ARL
TOPIC NUMBER	A06-078
CONTRACT NUMBER	
YEAR OF AWARD	
AWARD START DATE	
AWARD COMPLETION DATE	
PROPOSAL NUMBER	A062-078-0341
TITLE	New and Improved Nonaqueous Electrolyte Components - Salts and Solvents
PROJECT MANAGER	Victor R. Koch (781) 938-1140 koch@covalentAssociates.com
COMPANY	Covalent Associates, Inc. 10 State Street Woburn MA 01801-6820 Minority Owned: No Veteran Owned: No Number of Employees: 4
KEYWORDS	lithium, ion, battery, electrolyte
ABSTRACT	A need exists to significantly improve the low temperature performance of lithium ion (Li-ion) batteries presently being developed for U.S. Army field applications. State-of-the-art Li-ion battery performance rapidly declines as the temperature falls below -10°C; yet high rate capability with useful battery capacity at temperatures as low as -40°C is required to meet warfighter requirements on the battlefield. To solve this problem we propose to develop a novel Li-ion battery electrolyte formulation that incorporates some new electrolyte additives. Covalent's novel Li-ion battery electrolytes will provide a simple and cost-effective solution for the low temperature performance problem since we have demonstrated that small quantities of the additives significantly enhance low temperature rate capability while enabling Li-ion battery performance at temperatures of up to 80°C.
BENEFITS	The proposed innovation will result in Li-ion batteries that operate safely over a significantly wider temperature range. This will benefit the military as well as impact a broad spectrum of civilian applications in the areas of consumer electronics, cordless power tools and hybrid electric vehicles.