Fiscal Year:	FY 2009	**Task Last Updated:**	FY 09/01/2009
PI Name:	Oziomek, Thomas B.S.		
Project Title:	Bulk Overwrap Packaging		
Division Name:	Human Research		
Program/Discipline:	HUMAN RESEARCH		
Program/Discipline--Element/Subdiscipline:	HUMAN RESEARCH--Space Human Factors Engineering		
Joint Agency Name:		**TechPort:**	No
Human Research Program Elements:	(1) **SHFH**:Space Human Factors & Habitability (archival in 2017)		
Human Research Program Risks:	(1) **Food**:Risk of Performance Decrement and Crew Illness Due to an Inadequate Food System		
Space Biology Element:	None		
Space Biology Cross-Element Discipline:	None		
Space Biology Special Category:	None		
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PI Organization Type:	INDUSTRY	**Phone:**	281-483-2006
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Zip Code:	77058	**Congressional District:**	22
Comments:			
Project Type:	GROUND	**Solicitation / Funding Source:**	Directed Research
Start Date:	10/01/2008	**End Date:**	09/30/2010
No. of Post Docs:		**No. of PhD Degrees:**	
No. of PhD Candidates:		**No. of Master' Degrees:**	
No. of Master's Candidates:		**No. of Bachelor's Degrees:**	
No. of Bachelor's Candidates:		**Monitoring Center:**	NASA JSC
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Flight Program:			
Flight Assignment:			
Key Personnel Changes/Previous PI:			
COI Name (Institution):			
Grant/Contract No.:			
Performance Goal No.:			
Performance Goal Text:			
	NASA has established the goal of returning human expeditions to the moon and extending exploration to Mars. Extended manned missions of these types require massive quantities of food to be flown into space. This presents two challenges when dealing with a food system. These challenges are maintaining the quality of the food throughout its shelf life which may be in excess of five years, and to assure the mass and volume of the food system are minimized. The purpose of this project is to identify a low mass, flexible bulk overwrap system intended to maximize shelf life of food by preventing oxygen and moisture ingress, while minimizing volume and mass of the total system. The research will involve the identification of materials, scavenger systems, and various packaging configurations to meet all of the above requirements. The current packaging and stowage system is efficient enough for the existing short duration missions involving high		

Task Description:	payload vehicles such as the Shuttle Transportation System (STS) and Russian Progress vehicles. Payload for long duration missions of years rather than months, like the International Space Station (ISS) missions, will require a greater quantity of food in proportion to other supplies than do the missions of today. Thus, the need for reduced stowage mass and volume becomes critical in order to execute future missions. The outline below lists the key elements of the bulk overwrap system development and evaluation. • Select and evaluate overwrap materials • Evaluate various flexible pouch configurations • Evaluate re-sealable systems • Evaluate scavenger systems • Develop efficient method for packaging -- Vacuum packaging parameters -- Gas flushing parameters -- Heat Sealing parameters -- Rigid fixtures to manipulate shape • Compare mass of bulk overwrap system vs. individual overwrap • Compare mass of bulk overwrap system vs. current ISS rigid container system • Document possible improvements to the existing system • Recommendations for future work
Rationale for HRP Directed Research:	
Research Impact/Earth Benefits:	0
Task Progress:	New project for FY2009.
Bibliography Type:	Description: (Last Updated:)