US006165295A

82,146

United States Patent [19]

[11] Patent Number: 6,165,295

[45] Date of Patent: Dec. 26, 2000

[54] GAS-GENERATING LIQUID COMPOSITIONS (PERSOL 1)

[76] Inventor:

[21] Appl. No.: 09/447,273

[22] Filed: Nov. 23, 1999

[51] Int. Cl.[7] C06B 31/28; C06B 31/00; C06B 31/02; C06B 31/12

[52] U.S. Cl. 149/46; 149/45; 149/61; 149/62

[58] Field of Search 149/46, 61, 62

[56] References Cited

U.S. PATENT DOCUMENTS

H1768	1/1999	Mueller et al. .	
3,561,533	2/1971	McKinnell .	
3,622,408	11/1971	Lyerly	149/109
3,790,415	2/1974	Tornic	149/2
3,793,096	2/1974	Young	149/2
4,033,264	7/1977	Bolza et al.	102/24
4,047,988	9/1977	Weill et al. .	
4,391,659	7/1983	Smith	149/2
4,486,317	12/1984	Sandell	252/8.5
5,240,524	8/1993	Chattopadhyay	149/46
5,607,181	3/1997	Richardson et al.	280/737
5,670,739	9/1997	Patterson et al.	149/2
5,972,136	10/1999	Waganian	149/46

OTHER PUBLICATIONS

Anderson, W., et al. Low Cost Propulsion Using a High-Density, Storable, and Clean Propellant Combination.

Mul, et al. Search For New Storable High Performance Propellants, (AIAA-88-3354, AIAA/ASME/SAE/ASEE 24th Joint Propulsion Conference, Boston, Jul. 1988.

Rusek, J., New Decomposition Catalysts And Characterization Techniques For Rocket-Grade Hydrogen Peroxide J. of Propulsion and Power. 1996, 12, 574-579.

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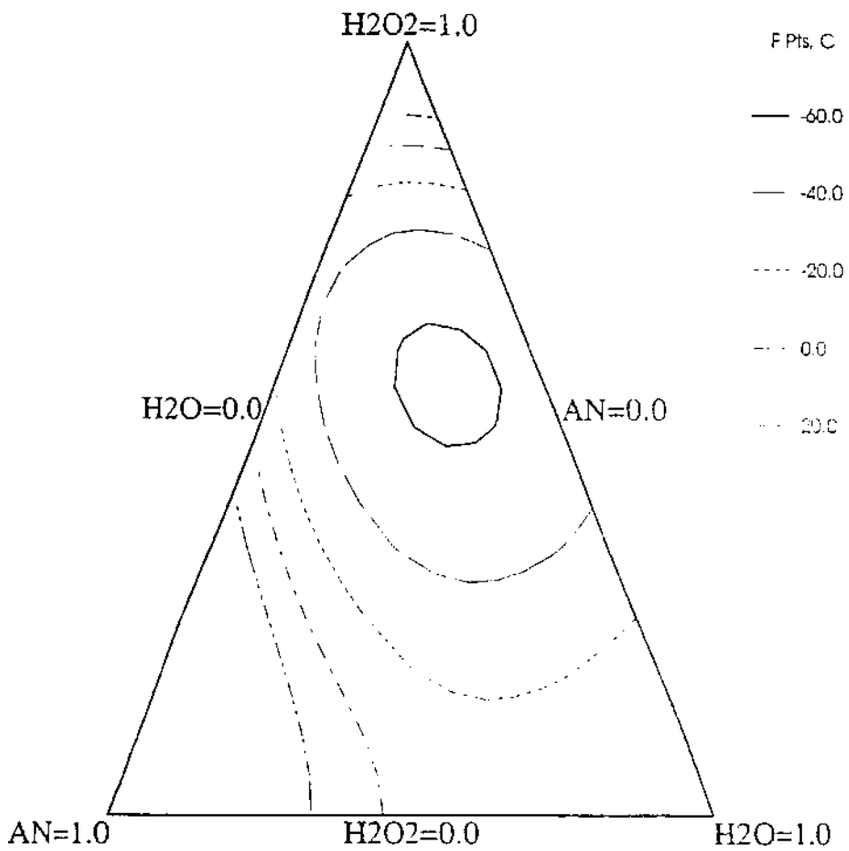
[57] ABSTRACT

A family of water-based gas-generating liquid compositions is described. A composition of the present invention includes: hydrogen peroxide; ammonium nitrate; and water. Compositions of the present invention may be mixed with fuels to make monopropellants or used in bipropellant or hybrid systems. Alternative uses of the present invention include breathable gas generation.

11 Claims, 2 Drawing Sheets