

ENVIRO TECH CHEMICALS, Inc.

June, 2002

BOD TESTING

BOD and micro test results using various oxidants at different red pepper solids:

Performed at a bell pepper processing and freezing operation in Central California.

Chopped and blended 10 or 30 gms of pepper into one liter of water for each test.

Contact times: Approx. 1 hour. Amounts reported are on a wt/wt basis.

Plate counts were performed using the total aerobic 3M PetriFilm method.

<u>Test</u>	<u>BOD Results-ppm</u>		<u>Total Plate cfu/ml</u>	
	<u>1% Solids</u>	<u>3% Solids</u>	<u>1% Solids</u>	<u>3% Solids</u>
CONTROL	530	1500	830	4300
Bleach 60 ppm	550	1300	2	2
CIO2 9 ppm	650	1220	4	3300
Bromine 14 ppm	510	1300	4	1200
E.T. Perasan 70 ppm	220	990	<1	<1
Competitor PAA 70 ppm	680	1500	4	<10

or EXPRESSED ANOTHER WAY:

<u>Test</u>	<u>1% Red Pepper solids</u>		<u>3% Red Pepper solids</u>		<u>Salt * Contribution ppm</u>
	<u>BOD ppm</u>	<u>Plate count cfu/ml</u>	<u>BOD ppm</u>	<u>Plate count cfu/ml</u>	
CONTROL	530	830	1500	4300	0
Bleach 60 ppm	550	2	1300	<10	108
CIO2 9 ppm	650	4	1220	3300	16
Bromine 14 ppm	510	4	1300	1200	24
E.T. Perasan 70 ppm	220	<1	990	<10	0
Competitor PAA 70 ppm	680	4	1500	<10	0

It appears the 3% pepper solids was too much for the relative dosed amount of CIO2 and Bromine.

\*\*Salt: Based on the fact of chemistry that bleach contains a total salt content of 1.8 x's its own weight; each active ppm of chlorine dioxide generates 1.78 x's its own weight in salt; and each ppm of free bromine creates salt at the level of 1.7 times its own weight in solution.

One of the components of PAA is acetic acid, which has a known BOD requirement. The peracetic acid degrades to acetic acid, so the components must be added together to determine the total added BOD requirement caused by the acetate fraction. Perasan 15% contains 60% less acetic acid and almost 3 times the amount of hydrogen peroxide, (vs. the competition) which affords it a more favorable BOD rating.