GEORGIA INSTITUTE OF TECHNOLOGY
Engineering Experiment Station

PROJECT INITIATION

Date: March 5, 1974

Project Title: Waste Converter Evaluation and Development

Project No.: A-1472

Project Director: H. G. Dean

Sponsor: Tech-Air Corporation

Effective May 1, 1973 Estimated to run until Open

Type Agreement: Standard Industrial Research Amount: $ 60,000

Reports Required: Task Reports, as requested

Sponsor Contact Person (s): Dr. M. D. Bowen
Tech-Air Corporation
2231 Perimeter Park
Suite 14
Atlanta, Georgia 30341

Assigned to TECHNOLOGY APPLICATIONS GROUP XXXXXXXX
~~Division~~ XXXXXXXX

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RA-73

GEORGIA INSTITUTE OF TECHNOLOGY

ENGINEERING EXPERIMENT STATION

PROJECT TERMINATION

Date: August 21, 1975

Project Title: Waste Converter Evaluation and Development

Project No.: A-1472

Project Director: H. G. Dean

Sponsor: Tech-Air Corporation

Effective Termination Date: 6/30/75

Clearance of Accounting Charges: by 6/30/75

Grant/Contract Closeout Actions Remaining: None

NOTE: Follow-on project is A-1767; all costs incurred under this program after 6/30/75 should be recorded in A-1767

Assigned to: Productivity/Technology Applications Group

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Form EES 402 (R3—75)

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ANALYTICAL RESULTS AND ADSORPTIVITY TESTS

The results of the analyses and the adsorptivity tests with the Polish carbon and some chars from the Blue II and Blue III pyrolytic converters are given in the attached Table. In addition, the following results were obtained on a Darco S-51 carbon: Polish methylene blue number, 18; E.P.A. methylene blue number, 166; Polish molasses number (MG), 149. The Blue II and III chars show slight degree of activation. The treatment of Blue III char with steam for five minutes shows that the steam improved its activity slightly. Further treatment with steam under optimum conditions would produce a higher degree of activation. For the determinations of Polish molasses numbers (MG), the Polish carbon was used as a "standard" carbon, and a molasses solution was prepared in accordance with the Polish directions.

ANALYTICAL RESULTS ON CARBON SAMPLES

Test	CWZ-3	Blue II[6]	Blue III[9]	Activated Blue III[11]
% Moisture	8.34	0	0	0
% Total Ash	7.12	-	-	4.62
% Acid Insol. Ash	2.11	-	-	0.54
Iodine Value	76.8[1]	62.4[7]	59.6[10]	73.20[12]
Iodine Number (mg. iodine/g. carbon)	531[2]	410[8]	-	-
Methylene Blue Number (Polish)	15.0[3]	9.5	5	6
Methylene Blue Test (Mantell)	77.5[4]	26.5	-	-
Molasses Number (MG) (Polish)	335[5]	-	>>800	760

[1]Average of two determinations--(1) 76.8; (2) 76.8.
[2]One determination.
[3]As received, two determinations--(1) 15.0; (2) 15.0; rechecked on micromilled sample 9/30--15.5.
[4]Average of two determinations--(1) 77; (2) 78; avg. 77.5.
[5]This molasses number is the value that was reported to our laboratory.
[6]Sample supplied by Tech-Air in dried condition. Ball milled for two hours in a 1/2 gallon jar using 13/16" Burundun cylinders.
[7]Average of two determinations--(1) 62.4; (2) 62.4.
[8]One determination.
[9]Sample supplied by Tech-Air. Dried before use. Char ball milled and then micromilled. Micromilled material used for all tests.
[10]Average of two determinations--(1) 60.1; (2) 59.1; avg. 59.6.
[11]Blue III char activated five minutes at 800°C using 2 gm. steam/hr/gm. char. Yield, 95 percent. Sample dried for tests.
[12]Two determinations--(1) 73.9; (2) 72.5; avg. 73.2

WET SCREEN ANALYSIS

Mesh Size	CWZ-3	Blue III Ball Milled	Blue III Micromilled
+100	2.76%	0.34%	0
100 x 200	16.71%	12.14%	0
200 x 325	11.75%	9.65%	4.03%
-325	68.78%	77.87%	95.97%