

TRIPLE/S DYNAMICS  
LAB TEST REPORT

CUSTOMER: [REDACTED]

SALES ENGINEER: [REDACTED]

DATE OF TEST: [REDACTED]

- I. MATERIAL: A) Stranded Hairwire  
B) Stranded Hairwire with small connectors  
C) Coil Windings, hairwire in paper wrap  
D) Small Resistors  
E) Large Resistors
- II. OBJECTIVE: Process samples of wire, resistors and windings, to simulate a wire processing system.
- III. EQUIPMENT: A) Model 24 Husky Primary Granulator with 3/16" or 3/8" grate, Infeed belt conveyor  
B) Overstrom LX3 single deck Texas Shaker® screens:  
coarse= .060"X.290" slot  
fine= 48 mesh (Tyler) .0116 c.o.  
C) Sutton Model V-135 Fluidized-Bed Separator with #200 deck, bin feeder and exhaust system
- IV. PROCEDURE: A) Each of the five samples were processed separately (no efforts were made to clean the equipment between samples, however; some trace cross contamination may be noted in the finished products).  
B) Process steps were;  
1. Granulation  
2. Screening into three size fractions  
3. Air separation on screened coarse and middle fractions  
C) Note attached flow sheet regrading process  
D) Small samples were retained during intermediate step, for customer reference.  
E) Air separation results in three products  
Heavy (metal)  
Middlings (mixture)  
Lights (insulation)

Middlings are an "in process" fraction at the end of each test.

V. Results: A) Hair Wire without ConnectorsGranulation

Net infeed: 67.0 lbs.  
 Feed Rate: 1,600 lb./hr.  
 Grate: 3/16 inch

Screening

<u>Screen Fraction</u>	<u>Weight(lbs.)</u>	<u>Percent by Weight</u>
+ .060X.290	21.0	36.8
- .060X.290+48m.	35.0	61.3
-48m.	1.06	1.9
	57.06	

Fluidized-bed Separation

Each of the two larger size fractions were processed on the V-135. Due to recycling of the middlings, capacity or unbiased percentages of the products cannot be determined. For reference, products are designated, Heavy(metal product), Mids(mixture of metal, unliberated metal and insulation), Lights(insulation). Due to lack of sufficient sample, the -48 mesh fraction could not be processed on the V-135.

B) Hair Wire with ConnectorsGranulation

Net Infeed: 62.5 lbs.  
 Feed Rate: 868 lbs./hr.  
 Grate: 3/16 inch

NOTE: During this granulation an amperage measurement was taken of the motor load. Amperage was an average of 45-60 amps, peak of 75 amps. The name plate rating of the motor on the lab #24 Husky is 125 amps.

Screening

<u>Screen Fraction</u>	<u>Weight(lbs.)</u>	<u>Percent by Weight</u>
+ .060X.290	26.5	48.5
- .060X.290+48m.	26.5	48.5

-48m.	<u>1.63</u>	3.0
	54.63	

Fluidized-bed Separation

Each of the two larger size fractions were processed on the V-135. Due to recycling of the middlings, capacity or unbiased percentages of the products cannot be determined. The steel connectors that were attached to the wire before granulation, represent the steel contaminant in the copper product. In a production circuit, this would be removed by magnets after granulation. Samples are designated as in (A). The -48m. sample was also too small for processing.

C) Windings

Granulation

Net Infeed: 84.0 lbs.  
 Feed Rate: not taken due to irregular feed  
 Grate: 3/16 inch

Screening

<u>Screen Fraction</u>	<u>Weight(lbs.)</u>	<u>Percent by Weight</u>
+ .060X.290	6.5	7.9
- .060X.290+48m.	74.25	90.8
-48m.	<u>1.06</u>	1.3
	81.81	

Fluidized-bed Separation

Each of the two larger size fractions were processed on the V-135. Due to recycling of the middlings, capacity or unbiased percentages of the products cannot be determined. The heavy sample from the +.060X.290 fraction is also designated as rechop. Contamination from wire in the granulator made a clean copper product not possible unless the larger, unliberated wire is rechopped. Samples are designated for each size fraction as; Heavy(copper), Mids(copper and paper) and Lights(paper). The -48m. sample is copper bearing, it could be processed, but, again was not enough sample.

D) Small ResistorsGranulation

Net Infeed: 71.0 lbs.  
 Feed Rate: 1,050 lbs./hr.  
 Grate: 3/16 inch

Screening

<u>Screen Fraction</u>	<u>Weight(lbs.)</u>	<u>Percent by Weight</u>
+ .060X.290	6.94	9.0
- .060X.290+48m.	69.0	89.5
-48m.	1.13	1.5
	<u>77.07</u>	

Fluidized-bed Separation

Each of the two larger size fractions were processed on the V-135. Due to recycling of the middlings, capacity or unbiased percentages of the products cannot be determined. For reference, products are designated, Heavy(metal product), Mids(mixture of metal, and bakelite), Lights(bakelite). The -48m. sample appeared to be bakelite and was not processed.

E) Large ResistorsGranulation

Net Infeed: 90.0 lbs.  
 Feed Rate: 3,375 lbs./hr.  
 Grate: 3/8 inch

Screening

<u>Screen Fraction</u>	<u>Weight(lbs.)</u>	<u>Percent by Weight</u>
+ .060X.290	62.5	70.6
- .060X.290-48m.	23.5	26.5
-48m.	2.56	2.9
	<u>88.56</u>	

Fluidized-bed Separation

Each of the two larger size fractions were processed on the V-135. Due to recycling of the middlings, capacity or unbiased percentages of the products

cannot be determined. Samples are designated as in (D).

VI. **SAMPLE DISPOSITION:** The bulk of the processed samples have been returned to the customer for further analysis.

VII. **SUMMARY:** Test results were positive, with efficient reduction and separation for each material.

Flow-Sheet #4/4/85-JG attached.