Test 15:

Bundle: Seven wires (6 over 1) of BMS 42A/8/1-20 specification.
Metal Shaving: Aluminum 7075; 70 mils by 8 mils
Circuit Resistance: 1 Ohm
Generator: 3 phase, 400Hz, 120 line to neutral (208 line to line), 10 kVA.

Observations	Test 15
Flash	Yes
Strong Arcing	No
Circuit Breakers Tripped	No
Damage Length	0
# Wires Failing Wet Dielectric Test	0 of 5

This sample flashed immediately and then became dormant. There was no soot deposited and no visible damage to the insulation. None of the circuit breakers tripped and none of the five wires tested failed the wet dielectric test.

The oscilloscope showed was only a ½ cycle of an arcing waveform with a peak current of 100 amperes. The total electrical energy dissipated in the flash was 2 joules.

Metal Shavings Abrasion

Test 16 A & B:

Metal shaving abrader test 90° (right angle).
2 Bundles: Seven wires each of BMS 42A/8/1-20 specification.
Metal Shaving: Bundle A: Steel; 41 mils by 26 mils
Bundle B Aluminum 7075; 42 mils by 30 mils
Circuit Resistance: 1 Ohm
Generator: 3 phase, 400Hz, 120 line to neutral (208 line to line), 10 kVA.

Observations	Test 16A	Test 16B
Flash	No	No
Strong Arcing	No	No
Circuit Breakers Tripped	No	No
Damage Length	0	0
# Wires Failing Wet Dielectric Test	1 of 7	2 of 7

In this test two samples were run concurrently. Bundles were identical to each other except that bundle A had a steel shaving woven between its wires and bundle B had an aluminum 7075 shaving. The test was run for 19 1/4 hours with no arcing events (Figure 38). While the wire sustained some damage in the area of the shaving, the damage was primarily to the topcoat with the steel shaving doing moderate damage to the Poly X layer (Figure 39).

The flexing of the bundles did cause more severe damage in areas away from the shaving. In test A, one of the wire was broken completely in half. In test B, one wire was broken in half and the insulation on other wire cracked so that the conductor was exposed. These three wires failed the wet dielectric test while all of the other wires passed.