STEEL MILL PRODUCTS DIVISION

RESEARCH & DEVELOPMENT DEPT.

NOVEMBER 1973

1. NON-ASBESTOS PROFAX

(a) Plant Run

EP-5465 (asbestos and paper free) recipe is used under regular basis on Mark III machines.

No major technical problems were experienced during the month.

The excessive foam forming, which still occurs occasionally, is attributed also to the holding tank. Small adjustments on holding tank's agitation systems is foreseen.

(b) Plant Experiments

During November 1973, we experienced EP-5465 on the Corrugated Type Machine. The run was kept on for 24 hours. By the end of the run, excessive foam formation was experienced. A careful analysis showed that the specific holding tank, despite its low speed, has the most vigorous action. We are working with the Production Dept. to improve the present holding tank agitation system.

The Mark IV machine was the most focussed machine during the month.

We tried desperately to produce Seal-On rings using XS-1560C. Our attempts were unsuccessful. We are going to schedule an experimental run in Chicago using the same recipe (XS-1560C) employing a converted 1-Pc machine for that purpose.

In our opinion, Mark IV machine's holding tank is the main cause of all the problems we have. Mark IV machine's holding tank does not keep the slurry (asbestos bearing or non-asbestos recipes) in suspension. Contrary to its design, it works against suspension properties of the slurry. Hopefully, the problem will be solved soon due to the company concern of having non-asbestos Seal-On rings.

2. NON-ASBESTOS PROFLEX

No experimental run was scheduled during the month.

3. NON-ASBESTOS NON-SILICA PROFAX

No experimental run was scheduled during the month.

4. MISCELLANEOUS

(a) Effect of Air Pressure on Profax

The air pressure applied has effects to the permeability and the density of the product.

Thus, the permeability is decreasing with the increasing of air pressure and the density is increasing with it.

(b) Friability Test

EP-5465 is less friable by using X3584 or X3211. The replacement ratio should be 1:1.4 (447: X3211 or X3584). Therefore, we have revised the Profax 31 recipe and EP-5465. The new recipes are Profax 31B and EP-5465A.

(c) Solids Concentration in Non-Asbestos Materials

The slurry solid's concentration is one of the most controversial problems.

Our observation (subscribed under graph forms) showed that non-asbestos slurry should have the solids concentration over 25%.

The solid's concentration is affected also by fiber content (organic and inorganic) and clay or caoline.

(d) Green Strength Test Apparatus

The green strength properties are tested in vertical position.

(e) Non-Asbestos Premix Recipe Development

A recipe was envisaged for 4000 lbs. batch mixed in dry state.

5. PREMIX PROFAX AT BETHLEHEM-JOHNSTOWN

The average scrap rate for the month was 2.06% versus 0.26% last month. The high scrap rate was caused by mechanical troubles. The transverse strength and density were 272 p.s.i. versus 334 p.s.i. and 0.86 g/cc versus 0.9 g/cc.

No technical problems were experienced during the month.

6. HOT TOPPING COMPOUNDS DEVELOPMENT

(a) No metallurgical results have been, as yet, completed and released by Armco-Ashland following EP-5454, EP-5455 and EP-5466 tests.

(b) A new, cheap, hot topping compound is under development with encouraging preliminary results.

The raw material cost will be 23-30% less than Ferrux 345. However, the new material has Ferrux 345 material exothermical properties.