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CORPORATE TECHNICAL SUPPORT
Third Quarter Summary 1979

Corporate Environmental Laboratory - O. S. Kurtz, R. B. Whitehead, J. W. Born,
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Solid waste material is classified as toxic or mutagenic based upon the properties of the laboratory generated leachate from the waste material. Latex scrap from the Avon Lake General Chemical plant is being landfilled in combination with automobile shreddings. The question asked was whether the leachate is toxic. Based upon the chemical analysis of the laboratory leachate, the combination latex scrap/ automobile shreddings is not a toxic waste.

A secondary outcome of this leachate study regards leachate testing methodology and cost. The chemical analyses required for leachate testing are numerous, time consuming and costly. It will be necessary to judiciously choose which industrial wastes will receive such study. Hopefully, those with the greatest disposal costs will be examined first.

A careful study of the gas composition discharged from the bag house at Marion is now underway. The object of the investigation is energy conservation. If the discharged air can be shown to be free of health hazards, it will be directly recycled into the plant. The presence of chemical hazards to health will require expensive alternative means of reclaiming the heat. The specific bag house is located in the compounding area of the plant. An examination of the material retained in the collector shows the presence of submicron particulate material, rubber curatives, carbon and lead. The field work currently in progress is focused on particulate, lead and curative material.

In a similar energy reclamation project, preliminary investigations are being made of the material collected by "Smog Hogs". The mass spectrometric, liquid chromatographic and infrared groups are conducting tests of condensates from these "Smog Hogs". These findings will be used to design future field tests to determine the amount and identity of chemicals discharged from these "Smog Hogs". Once again, if the discharge air is free of chemical hazards, it will be directly recirculated into the factory. All of these heat reclamation projects are being carried out jointly with the Industrial Hygiene Department and the EPG Environmental Engineering Department.

The mobile laboratory was stationed at the Akron General Chemical plant for all of July and August in a study of the Cure-Rite 18 process. The testing has been completed and a report is being prepared. The work documents the amounts of methanol and morpholine discharged with the water. The amounts of methylene chloride, carbon disulfide and Cure-Rite 18 are very small and generally below the limit of detection. Atmospheric emissions were found predominantly from the methanol stripper with very little discharge from any other sources. The report in progress will document the discharge loadings, compositions and observed variations.

The vinyl chloride compensating field monitor is ready for continuous field operation. The device, which was designed and built by the Environmental Lab, provides for corrected 24-hour continuous air sampling with Bendix Flasher tubes. The monitor has been operating in a shakedown fashion for six weeks at the Avon Lake General Chemical Plant. The current plan is to install the monitor on the roof of the Avon Lake City Administration Building in early October. From that sampling site the monitor will operate continuously, providing accurate readings of the VCM concentration in the village of Avon Lake.

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The Environmental Lab is participating in a Chemical Group task force on priority pollutants in water. At this time, a data base of previous measurements is being compiled. The object is to determine how much data are in existence to describe our discharge situation and whether it is sufficient. This survey and collection of data are to be complete by mid October.

Recent report of nitrosamines in the air of the passenger compartment of new cars has accelerated the lab's interest in these chemicals. The air sampling devices known as Thermosorb tubes are on hand and being evaluated. These devices appear to be the most efficient air collection devices for nitrosamine air sampling. Analysis equipment for the measurement of nitrosamines is on hand and functions.

The OSHA pollutant cross-check program is continuing. The first two submissions of VCM tubes generated problems. We think the problem is in the preparation of the tubes and corrective steps have been taken. The acrylonitrile cross-check samples are now being analyzed by the nitrogen detector at the plants. This should provide evidence of the increased sensitivity.

The cross-check samples are part of a program to control the quality of OSHA testing at the chemical plants. Also, part of that program is a plant site review of OSHA lab operations. Five plants have been visited. Most of the operations are good. In a few cases improvements have been recommended to make for more reliable or efficient or uniform operations.

Polymer Processing and Physical Testing - S. R. Keyser

Our report describing the establishment of baseline processing profiles from the BR Banbury based on DSR parameters has been distributed. These processing profiles for an NR and an SBR-CB free black recipe are those we will attempt to match in our other laboratory mixers.

A report describing our preliminary mixing of the NR free black recipe in the 1D Banbury is now being prepared. In this work we established mixer conditions (60% fill, 220°F steamline temperature, and 40 RPM rotor speed) that, at various work inputs, produced a range of DSR values that encompassed our baseline values from the BR mixing. This work suggests that by varying rotor speed we can match DSR values for the NR recipes at equivalent unit work inputs from the BR and 1D Banbury mixers.

The testing and data analysis have been completed for the comparison of results using various stress-strain methods. Clearly, each of the test methods used does not produce the same results. Examination of each test method in use may reveal the reasons for these differences and why one test method is preferred over another for a given sample.

Dan Hasman has assumed the leadership role in the Laboratory Methods and Standards Committee (LMSC). The LMSC has completed a general cross-check program of various tests at BFG plants and technical centers wishing to participate. Reports describing the tensile stress-strain, tensile die check, AIML Mooney, Mooney scorch, ODR, brittleness, specific gravity, BFG flexometer, pico, ring flex, hardness, and DSR cross-checks have either been distributed or will be distributed in the near future.

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