Bob - Your report has been incorporated into D/0020 activity report. You may wish to keep (or discard) this.

Verne
10/2/81

To: MV Johnson
From: RK Hinder
Subject: September 1981 Progress Report

AN 7801 –

(1) ~~1. PVC/CPVC~~ Dr. Hinderer: ~~I~~ met with Dr. Kim Hooper (Cal. Dept. of Health) and discussed the plastic pipe controversy. He stated that the ~~Department~~ Hazard Alert group did not ~~have~~ force any further involvement in this issue, but he admitted that it was remotely possible that someone could request their assistance. Dr. Hooper also mentioned that the ~~[illegible]~~ plumber health survey is ~~still~~ being continued at USC. However, this is more oriented to possible solvent cement concerns.

John Stohlton (PPFA legal counsel) reports ~~that the plastic pipe controversy [illegible] changing favorably that the California plastic pipe picture may be~~ that there have been some recent changes in California which may ~~be~~ have a favorable impact on plastic pipe. Of particular importance is the coming demise of the Housing Commission ~~on~~ (Jan. 1, 1982) and the subsequent transfer of authority for regulating pipe to the Housing Dept. ~~Mr. Stohlton~~ Apparently, many of the officials in the Housing Dept. are much more moderate and believe that plastic pipe is not a problem. We are continuing to work with ~~appropriate~~ the Chemical Group on this problem.

(2) ~~2 Cure-site (R) 18 and OBTS~~. The long-term feeding studies with CR-18 and OBTS are proceeding satisfactorially.

We have developed a protocol to evaluate the metabolism of CR-18 and have submitted an EA for approval. This work will help us determine the need to conduct a long-term feeding study in a second species (mice). Monsanto is also considering similar work with OBTS.

(3) ~~3. Surgan~~. Initial results of human skin patch studies with Surgan look favorable. Final results are due in October. We are continuing to work closely with the business team during the early development of this product.

4. Combustion Toxicology. The combustion toxicity studies ~~with certain Ostane, PVC, and CPVC products are due to begin soon~~.

(10) 5. Vinylidene chloride. Dr. Henderson ~~I~~ prepared comments on the Draft Final Report on the long-term inhalation exposure of rats to ~~VDC~~ Vinylidene Chloride. We voted not to accept the report.

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(11) ~~6. Hycar Pressure Sensitive Adhesives~~. Dr Hinderer ~~I~~ attended a meeting with PSA business team members and discussed health and regulatory issues associated with these ~~materials~~ Hycar pressure sensitive adhesives.

~~7 GLPs. Dr Hinderer met with Jim Riddle and we discussed the continuing implementation of Good Laboratory Practices in the Genetic Toxicology Laboratory.~~

(12) 8 ~~CMA/Phthalate esters~~. At the request of the Chemical Group Dr Hinderer attended an EPA ~~conference~~ meeting on the Industry voluntary program designed to look at possible health affects associated with ~~DOP~~ phthalates. ~~and DOP. EPA was very~~ EPA generally felt that the program was good. Furthermore, there was no evidence of any opposition by environmental groups.

(13) 9 ~~NAS Committee Meeting~~. Dr Hinderer ~~I~~ attended a meeting of the National Academy of Sciences Committee on Water Treatment Chemicals. Standards for impurities were chosen. EPA has chosen to continue financial support of this work into 1982.

(14) 10. ~~Code 10 D~~. Toxicology studies have been initiated on Code 10 D. These studies will be used to support a PMN for this material

(4) 11 ~~EDC~~. Dr. Maltoni has not yet responded to our request for changes in the final report on the inhalation exposure with EDC to rats and mice.

Although all ~~[illegible]~~ toxicological work is essentially complete, many members have decided to continue support of this committee's existence after changing its scope to an advocacy role. BFG has declined to participate.

~~12. Coming Attractions~~

~~CR-18 feeding study site visit~~

~~Status report on California Pipe Controversy~~

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B.F.G TECHNICAL DOCUMENT

THE B F GOODRICH COMPANY CHEMICAL DIVISION POLYMER CHARACTERIZATION REPORT

AUTHOR	LOCATION	DATE	LOG BOOK REFERENCE
E. J. Roche	ALTC/PSC-423	November 30, 81	
REQUESTED BY	LOCATION	PROJECT NO.	GROUP FILE ACC. NO
J. L. Murrey	ALTC/416	#3743	

SUBJECT -

Thermal Stability Studies of PVC Compounds by DSC - Initial Report

Introduction

In previous reports (1, 2) a differential thermal analysis (DTA) test has been used to evaluate the thermal stability of PVC resins and PVC plastisols. In this test an exotherm is observed which arises from the reaction of stabilizers with HCl formed during polymer degradation. It is known that this type of exotherm will occur with certain stabilizers but not with others. (3) Results on PVC plastisols showed good reproducibility. Reproducibility was poorer on tests of PVC resin. This was interpreted as due to problems in uniformly mixing stabilizer and resin in small quantities. The presence of the plasticizer gives higher uniformity of the stabilizer in the PVC plastisols. In this study an evaluation is made of the feasibility of using the test on cubed PVC compounds. Different stabilizers are examined to determine which give the stabilization exotherm. The reproducibility of results is also evaluated.

Experimental

Tests were run on the Du Pont 990 using the DSC cell and hermetically sealed pans. This procedure has been found to give better results than using the DTA cell. In addition, any HCl produced is confined in the sample pan in most cases. DSC scans were performed from 35 to 300°C at 20°C/min. scan rate.

Results and Discussion

The compounds studied were:

(1) [redacted]-021 containing 2 phr of S-86 (Methyl Tin Stabilizer)

([redacted]-021 containing 5 phr of S-94 (Tri Base Lead Sulfate)
[redacted] phr S-10 (Dibasic Lead Stearate)

(3) [redacted]-021 containing 6 phr of S-94

(4) [redacted] Trans 001 containing 3 phr S-69 (Butyl Tin Stabilizer)

Compounds (1) and (4) showed no stabilization exotherm. Compounds (2) and (3) did show the exotherm. Five samples were run of each of the latter to evaluate reproducibility. A list of the measured exotherm temperatures is given in Table I. For compound (2) we find an average of 270.4 ± 5°C compared to 264.8 ± 2°C for compound 3. One scan of compound 3 showed a double exotherm. This seems to be due to non-uniformity within that given sample.

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In studies on stabilized resin a variation of about $\pm 4^{o}$C was observed in the stabilization exotherm. For plastisols the variation was about $\pm 2^{o}$C. On this basis the reproducibility of the results for compound 3 is quite good while reproducibility for compound 2 is significantly worse. The reproducibility is assumed to reflect the uniformity of stabilizer concentration in the compound.

Conclusions

The DSC test for thermal stability was found to be feasible for the lead containing compounds. The two compounds containing tin stabilizers did not exhibit the stabilization exotherm. The reproducibility of results for one of the two lead containing compounds was quite good, probably indicating a uniform stabilizer concentration. Reproducibility for the other lead containing compound was poorer, probably indicating a less uniform stabilizer concentration.

Table I

Compound	Exotherm Temp. (^{o}C)	Average
87238-021	265, 269, 271, 272, 275	270.4 ± 5^{o}C
87317-021	263, 264, 265, 267 (258, 266*)	264.8 ± 2^{o}C

*Double exotherm observed.

References

(1) Technical Report, E. J. Roche to C. A. Daniels, DTA Testing for Plastisol Stability (11/19/1980).

(2) Technical Report, E. J. Roche to C. A. Daniels, Comparison of Thermal Stability Tests for PVC - Preliminary Report (6/17/1981).

(3) W. Dick and C. Westerberg, J. Macromol. Science-Chem. A 12 (3), pp. 455-466, (1978).

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Edward J. Roche

EJR/rmh

cc: L. B. Crider, C. A. Daniels, P. V. Lloyd, V. C. Vyvoda, R. J. Meyer (2)