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MONSANTO CANADA LIMITED

PROCESS TECHNOLOGY - PLASTICS

To: Mr. J. Keleti
K-66-223

Subject: TECHNICAL SERVICE LABORATORY SUPPORT - PLASTICIZER

STATUS REPORT - January - June 1966

Report submitted by: H. Jongsma

DATE June 30, 1966

Distribution: Mr. E.H. Toombs
Mr. J. Bagnall
Mr. J. Darby - St. L. COPY FOR
Mr. H.R. Ford - St.L.
Mr. W.G. Hatton
Mr. R.S. Trump
Mr. A. Vendette

OUTLINE:

MTS-66-13-1 Dec. 27/65
MTS-66-13-2 March 17/66
MTS-66-13-3 March 25/66
MTS-66-13-4 April 5/66
MTS-66-13-5 April 18/66
MTS-66-13-7 May/66
MTS-66-MTL-8 June 18/66
MTS-66-13-9 May 11/66
MTS-66-13-10 May 18/66
MTS-66-13-11 May 30/66
MTS-66-13-13 June/66
MTS-66-13-14 June 19/66
MTS-66-13-15 June 20/66
MTS-66-13-16 June 21/66

MTS-65-13-46
MTS-65-13-54

Training Program

DSW 587747

MTS-66-13-1: Data sh. .ts - Dec. 27/65
Job No.: 06-13-7799

Request: Prepare data covering the following plasticizers made by Mocan but not by the Organic Division:-DOZ
S1165
S1171
DBS
S1185
S1110

A. For sections "General description" and "Properties" the following will be presented: chemical type; chemical formula; molecular weight; appearance, acidity; color, moisture, odor, specific gravity, weight per 1 Gal, refractive index, freezing pt, pourpoint, boiling-range, flashpoint, viscosity @0°C, 25°C and 98.9°C, Assay., Solubility in water, General solubility, D.C.R. Heat Stability. The pourpoint, heat stability, boiling range, flash point, refractive index, odor, moisture, color, acidity, appearance, viscosity at 25°C and 98.9°C., Assay (GLC and % ester content data have been collected. All the test procedures followed were checked and compared with the MC.- procedures by contacting Mr. J. Darby and Mr. S. F. Joyce.

B. For section "Performance in PVC Sheet":
The following tests have been scheduled where applicable: Shore A hardness, tensile, elongation, modulus, low temperature flexibility, volatility, water extraction, kerosene extraction, brittleness, migration, heat stability, V.R. and IR.
The above tests are to be carried out on three basic formulas 43 PHR, 67 PHR and 100 PHR where applicable. A general outline on typical electrical screening formulations, 105° formulation and suggested formulations for volatility, Tf and extractions were sent to us by Mr. C. D. Bias and were discussed with Mr. S.F. Joyce. A concise summary of the specific formulas for each of the above plasticizers still has to be completed before more work can be scheduled on each of the above tests after approval by M.C.

C. For section "Performance in Plastisol formulations":
Scheduled viscosity at 23°C, 40°C and 50°C (Initial, 1 day, 7 days and 14 days) for 65 PHR. Several orientating experiments have been carried out, varying the PHR, R.P.M, number of spindle and type of Brookfield used as dictated by the viscosity of the plasticizer to be studied. As a result a detailed suggested procedure will be sent to M.C. for approval; in an effort to collect data based on conditions which are as close as possible to the conditions used by MC.

MTS-66-13-2: - dated March 17/66

Request: test 75/25 D10P/HOP V.A. Tiles to replace 50/50 D10P/S-160 Customer: Dominion Oil Cloth. The G.L.C. analyses were carried out here. Mr. Orem (St. L.) commented that the proposition was not competitive.

DSW 587748

MTS-66-13-3 March 25/66 Export (MCAL) of S1170

Request: run brittleness test on every batch plus composite, including heat ageing on composite. Quality Control reported that every batch for MCAL was tested for brittleness and was found to be within specifications for release.

MTS-66-13-4 Green plastisol, Bennett Ltd. Apr. 5/66
Job No: 06-13-7848

Request: Run G.L.C. and prepare similar blend. The results have been reported and a one gallon sample was prepared for customer, consisting of Opalon 650 (32% by wt.) and D10P (68% by wt.). which had very close rheology characteristics to the green plastisol supplied (with 70% of a plasticiser with D10P as the nearest equivalent).

MTS-66-13-5: D1DP., Bay Mills Ltd. - April 18/66
Job No:06-13-7869

Request: Customer experienced severe pinholing throughout their product and they investigated every possible cause of their problem. Moisture determinations and comments on the Mocan D1DP storage facilities were requested.

Action taken: The required data and information was reported. The moisture content of the D1DP sample supplied by the customer was only: 0.041% which is well within specification The Mocan storage system is adequate to keep the products within moisture specifications. Flintkote requested fusion data on DOP, S_{160} and DCP. The fusion points were reported (being 127, 89 and 130°C respectively) and the effect of S_{160} additions on the fusion point was shown.

MTS-66-13-7 Allied rubber requested rheology data and identification of a lacquer.
A report was issued, after further consultations with M.C., on the rheology data.
Also, the composition and suppliers of a supplied sample of a nitro-cellulose lacquer was reported -
Resin (Acrylic type) 20%
Solvents: Methylene chloride 45%
Toluene 25%
Cellosolve acetate 10%

M.T.S.-66-MTL-8 - June 8/66
Job No.: 06-16-7090

Cancelled

MTS-66-13-9 May 11 1966 - Monsanto (Oakville).

Request: Investigate plasticiser odor problem on D10P/D1DP/S-1160/DOP.

DSW 587749

STLCOPCB4093085

Action taken: Odourless DOP was recommended.

MTS-66-13-10 May 18 1966.
Job No.: 06-13-7897

Run low temperature characteristics and shore A hardness on off-grade DiButyl Azelate; DOZ, DOA and DOP (as standard).

Due to unavailability of steam, the moulding will be done in Oakville. The compounds required have been sent. The testing will be done here upon receipt of the slabs.

MTS-66-13-11 - May 30/66 - Flintkote
Job No.: 06-13-7882

Request: run a GLC. Analyses have been carried out and results were reported: 15 to 20%: Fatty Acid Esters.; 85-80% of D.O.P. (60%) and DIDP (40%). Upon request more work will be done.

MTS-66-13-13- Mocan Oakville - Mr. G. Rundans

The results of the identification of a red 004 gauge film have been reported:

DNODP	-	50%
DOP	-	10%
S-140	-	40%

MTS-66-13-14- DOP odorless - Cont. Can. June 9/66
Job No.: 06-13-7888

Prepare a 4 qts. odourless DDP food grade sample. The sample supplied by the Plant Lab is not odourless and was not accepted by MTS. One gallon and one quart of odourless DOP was shipped from M.C. St. Louis but they have not arrived yet. The samples are being traced.

MTS-66-13-15 - June 20/66-Reliable Toy - Mr. Markiewicz
Job No. 06-13-7898

Request: Replace a 90%-10% blend of BDP and Howflex 3030 by a monomeric plasticiser giving an equal hardness and ultimate elongation.

Action: After a telephone conversation of Mr. J. Keleti and Mr. Markiewicz a 1 IG sample of DOZ has been sent to them. We just received samples of Reliable Toy - vinyl balls and of vinyl balls made by their competitors. We reported that Howflex 3030 is similar to our S1100. Identifications and more work is underway.

MTS-66-13-16: - June 21/66 - Vinyl Fabric - Daly Morin
Job No: 06-13-7899

Customer is having problems with tackiness and the gloss of vinyl fabric.

DSW 587750

STLCOPCB4093086

Also with applying flexible vinyl backing problems are being encountered. Mr. D. Goodwillie has been requested for samples, formulas, and more details.

Feb. 14, 1966 Proj. No.: 06-13-7811 General Wire and Cable requested D.C.R. studies on DOZ-E and D1DA-E at time of manufacturing and after storage. The results have been reported.

The requested D.C.R. value of the 50/50 blend of the stock on hand was 3.2.

Requests 65-13-46 & 65-13-54 (Job No's 06-13-7741 & 06-13-7783)
General Wire & Cable requested stability studies on D.O.P.-E.

Request: DCR stability was to be improved to meet customers requirements.

Action: During a 10 week period studies were carried out on IR. Also VR, DCR, G.L.C. tests and the effect of time were studied. The DOP-samples examined were:

Regular DOP-E - Lot 15125
DOP taken from tank 15.7
DOP-E from Shawinigan Chemicals (which was Mocan-analysed as being D10P).

Aged and exposed DOP
Fresh DOP - S/T6

Also in consultation with M.C., Mr. C.D. Bias it was reported that the V.R., D.C.R. and IR results were normal and that our DOP is of good quality and compares well with competitors product.

Training of Sylvester Ko

The training as outlined in the May 2, 1966 - memo (K-66-188 which combines carrying out the MTS request 66-13-1 and some other plasticiser - requests with training on the plasticisers) was carried out from May 2-May 17.
The Opalon 650-A6-project for Northern Electric combined training in the P.V.C. area and actual quality follow-up untill the present.
Starting June 13 duties in the area of filing and organization were included also. Mr. S. Ko is to be further trained in Springfield on the P.V.C. testing procedures which include the procedures with the Brabender.

The remaining plasticiser tests of a second training program as mentioned in K-66-188 and the remaining PVC - Polystyrene test methods to be demonstrated during a third program will follow as soon as possible.

H. Jongsma

DSW 587751

STLCOPCB4093087