



Capital City Products
COMPANY

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February 18, 1987



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Dr. Robert Brink
EPA (TS-792)
Rm. 535, East Tower
401 M St., SW
Washington, D.C. 20460

Dear Dr. Brink:

At the request of Roberta Wedge, we are sending you the following information on ACCOSOFT 550 HHV 90% CAS 68410-69-5 and ACCOSOFT 808 CAS 68122-86-1:

- 1. Material Safety Data sheets on both.
- 2. Products for Fabric Softeners brochures.
- 3. Process Logs for 550 and 808 to be kept confidential.
- 4. Analytical sheets for same.
- 5. Toxicity Data for 4% and 8% ACCOSOFT 550.
- 6. Manufacturing poundage of ACCOSOFT 550 90% HHV.

We have 31 full time employees here at the Armstrong Plant. Most have been employed here from 5 to 10 years. The employees have had some limited physical contact in handling ACCOSOFT 550 90% HHV over the years.

We have noted no skin or respiratory complaints related to this material. Similarly, we have had no such complaints from either our bottler or packaging customers or their customers.

Our manufacturing experience has been much more limited with ACCOSOFT 808.

If we can be of any further help please let us know.

When your study is complete we would like to be advised of the details.

Very truly yours,

ARMSTRONG CHEMICAL PLANT

John B. Braunwarth
Operations Manager

JBB:jp
Enc.

P.O. Box 1759 Janesville, WI 53547-1759 608-752-9007

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REPORT TO

ARMSTRONG CHEMICAL COMPANY

ACUTE TOXICITY STUDIES WITH
ACCOSOFT 550 4% DISPERSION

JUNE 25, 1976

IET NO. 8530-08846

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REPORT TO

ARMSTRONG CHEMICAL COMPANY

ACUTE TOXICITY STUDIES WITH
ACCOSOFT 550 4% DISPERSION

JUNE 25, 1976

IBT NO. 8530-08846

I. Introduction

At the request of the Armstrong Chemical Company, the following studies were conducted with an opaque white liquid identified as Accosoft 550 4%

Dispersion:

Acute Oral Toxicity Study - Albino Rats

Eye Irritation Test - Albino Rabbits

Primary Skin Irritation Test - Albino Rabbits

II. Summary

The results of the acute toxicity studies conducted with Accosoft 550 4%

Dispersion are summarized below:

<u>Test</u>	<u>Classification</u>
Acute Oral Toxicity Study - Albino Rats	Relatively Harmless LD ₅₀ > 15,380 mg/kg
Eye Irritation Test - Albino Rabbits	Minimally Irritating (10.3/110.0)
Primary Skin Irritation Test - Albino Rabbits	Mildly Irritating (2.8/8.0)

Respectfully submitted,

INDUSTRIAL BIO-TEST LABORATORIES, INC.

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III. Results

A. Acute Oral Toxicity Study - Albino Rats

1. Mortality and Body Weights

Individual mortality and body weight data are presented in Table I.

2. Reactions and Pathology

The pharmacotoxic symptoms exhibited by the animals post-oral administration of Accosoft 550 4% Dispersion consisted of hypoactivity within 5 minutes at all dose levels which subsided within 6-22 hours.

No gross pathologic alterations were noted among any of the animals sacrificed at the end of the 14-day observation period.

PEQ ?
MSDS call PEQ Accosoft 550

TABLE I

Acute Oral Toxicity Study - Albino Rats

Mortality and Body Weight Data

IBT No.: 8530-08846

Test Material: Accosoft 550 4% Dispersion

Form Administered: Undiluted

Classification: Relatively Harmless

Acute Oral LD₅₀ > 15,380 mg/kg

Dose Level (mg/kg)	Animal Number and Sex	Individual Body Weights (grams)		Number Dead Number Tested	Percent Dead
		Test Day Number: 0	14		
1,350	1-M	226	290	0/4	0
	2-M	244	319		
	3-F	190	248		
	4-F	192	230		
4,556	5-M	244	328	0/4	0
	6-M	244	338		
	7-F	188	232		
	8-F	186	220		
15,380	9-M	240	304	0/4	0
	10-M	246	336		
	11-F	186	254		
	12-F	198	232		

B. Eye Irritation Test - Albino Rabbits

The results of the eye irritation test are presented in Table II.

TABLE II
Eye Irritation Test - Albino Rabbits

Results

Classification: Minimally Irritating
Maximum Mean Irritation Score: 10.3/110.0

IBT No.: 8530-08846
Test Material: Accosoft 550 4% Dispersion
Form Administered: Instillation (0.1 ml, undiluted)
Special Instructions: Unwashed eyes

Tissue	Rabbit Number	Hours				Days
		1 Hour	24 Hours	48 Hours	72 Hours	
Cornea (D-A)	1	0	0	0	0	0
Iris		5	0	0	0	0
Conjunctiva (R-S-D)		10 (2-2-1)	6 (2-1-0)	2 (1-0-0)	0	0
Total		15	6	2	0	0
Cornea (D-A)	2	0	0	0	0	0
Iris		5	0	0	0	0
Conjunctiva (R-S-D)		6 (2-1-0)	4 (1-1-0)	0	0	0
Total		11	4	0	0	0
Cornea (D-A)	3	0	0	0	0	0
Iris		5	0	0	0	0
Conjunctiva (R-S-D)		6 (2-1-0)	2 (1-0-0)	0	0	0
Total		11	2	0	0	0
Cornea (D-A)	4	0	0	0	0	0
Iris		5	0	0	0	0
Conjunctiva (R-S-D)		6 (2-1-0)	2 (1-0-0)	0	0	0
Total		11	2	0	0	0

TABLE II continued
 Eye Irritation Test - Albino Rabbits

Results

IBT No.: 8530-08846
 Test Material: Accosoft 550 4% Dispersion

Tissue	Rabbit Number	Hour	24 Hours	48 Hours	72 Hours	Day
Cornea (D-A)	5	0	0	0	0	0
Iris		0	0	0	0	0
Conjunctiva (R-S-D)		8 (2-1-1)	0	0	0	0
Total		8	0	0	0	0
Cornea (D-A)	6	0	0	0	0	0
Iris		0	0	0	0	0
Conjunctiva (R-S-D)		6 (2-1-0)	0	0	0	0
Total		6	0	0	0	0
<u>Averages</u>						
Cornea		0.0	0.0	0.0	0.0	0.0
Iris		3.3	0.0	0.0	0.0	0.0
Conjunctiva		7.0	2.3	0.3	0.0	0.0
Total		10.3	2.3	0.3	0.0	0.0

Cornea:
 D = Density
 A = Area
 Cornea Score = D x A x 5
 Maximum Score = 80

Iris:
 Iris Score = Value x 5
 Maximum Score = 10

Conjunctiva:
 R = Redness
 S = Swelling
 D = Discharge
 Conjunctival Score = (R+S+D) x 2
 Maximum Score = 20

C. Primary Skin Irritation Test - Albino Rabbits

The results of the primary skin irritation test are presented in Table III.

TABLE III

Primary Skin Irritation Test - Albino Rabbits

Results

IBT No.: 8530-08846
 Test Material: Accosoft 550 4% Dispersion
 Form Administered: 0.5 ml, undiluted
 Special Instructions: 24-hour exposure period;
 occluded sites

Classification: Mildly Irritating
 Mean Primary
 Irritation Score: 2.8/8.0

Animal Number	Irritation Scores for Abraded Skin Sites at:				Irritation Scores for Intact Skin Sites at:			
	24 Hours		72 Hours		24 Hours		72 Hours	
	Er.	Ed.	Er.	Ed.	Er.	Ed.	Er.	Ed.
	2	1	2	0	2	1	2	0
2	3	1	2	0	3	1	2	0
3	3	1	2	1	3	1	2	0
4	3	1	1	0,D	3	1	1	0,D
5	3	1	2	0,D	3	1	2	0,D
6	3	1	2	0	3	1	2	0
Mean	2.8	1.0	1.8	0.2	2.8	1.0	1.8	0.0

Subtotal 5.8

5.6

Primary Irritation Score = 2.8

Key:

- Er. = Erythema
- Ed. = Edema
- D = Desquamation

IV. Appendix

The detailed investigational procedures employed in these studies are presented in the following pages:

ACUTE ORAL TOXICITY STUDY - ALBINO RATS

Young albino rats derived from Sprague-Dawley stock were used as test animals. All animals were kept under observation for 5 days prior to experimental use, during which period they were checked for general health and suitability as test animals. The animals were housed in stock cages and were permitted a standard laboratory diet plus water ad libitum, except during the 16-hour period immediately prior to oral intubation when food was withheld.

Initial screening was conducted in order to determine the general level of toxicity of the test material. Selected groups of albino rats were administered the test material at several dose levels. All doses were administered directly into the stomachs of the rats using a hypodermic syringe equipped with a ball-tipped intubating needle.

After oral administration of the test material, the rats were housed individually in suspended, wire-mesh cages and observed for the following 14 days. Initial and final body weights, mortalities and reactions were recorded. A necropsy examination was conducted on all animals.

At the end of the observation period, the acute oral median lethal dose (LD₅₀) of the test material was calculated, if possible, using the techniques of Weil*, Thompson** and Thompson and Weil***. The test material was then assigned a classification in accordance with Harold C. Hodge****. The classification system is presented in the following table:

- * Weil, Carrol S.: Tables for Convenient Calculation of Median-Effective Dose (LD₅₀ or ED₅₀) and Instructions in Their Use. Biometrics, Sept. 1
- ** Thompson, William R.: Use of Moving Averages and Interpolation to Estimate Median-Effective Dose. Bact. Rev., Nov. 1947.
- *** Thompson, William R. and Weil, Carrol S.: On the Construction of Table for Moving Average Interpolation. Biometrics, March 1952.
- **** Hodge, Harold C., "The LD₅₀ and its value", American Perfumer and Cosmetics 80, 57 (1965).

TABLE

Acute Oral Toxicity Study - Albino Rats

**Classification of Test Materials
Based on Acute Oral LD₅₀**

Acute Oral LD₅₀ (Range of Values)	Classification	Probable lethal dose for a 70 kg man in commonly used measures
Less than 5 mg/kg	Extremely toxic	a taste (less than 7 drops)
5 - 50 mg/kg	Highly toxic	between 7 drops and 1 teaspoonful
50 - 500 mg/kg	Moderately toxic	between 1 teaspoonful and 1 ounce
500 - 5,000 mg/kg	Slightly toxic	between 1 ounce and 1 pint or 1 pound
5,000 - 15,000 mg/kg	Practically non-toxic	between 1 pint and 1 quart
Greater than 15,000 mg/kg	Relatively harmless	more than 1 quart

EYE IRRITATION TEST - ALBINO RABBITS

Young albino rabbits of the New Zealand strain were used to evaluate the eye irritating properties of the test material. The test method was patterned after that of Draize et al.*

The test material was instilled into the conjunctival sac of the right eye of each rabbit. The left eye of each animal served as a control. At each scoring interval the cornea, iris, and palpebral conjunctiva were examined and graded for irritation and injury according to a standard scoring system*. The maximum possible score at any one examination and scoring period is 110 points, which indicates maximal irritation and damage to all three ocular tissues. Zero score indicates no irritation. The scoring system is presented in Table A. In this scoring system, special emphasis is placed upon irritation or damage to the cornea, while less emphasis is placed upon damage to the iris and conjunctiva.

After the completion of the test, the scores were analyzed, and a descriptive eye irritation rating was assigned to the test material. The criteria used for assignment of the descriptive rating are the frequency, the extent, and the persistence of irritation or damage which occur to the three ocular tissues.

* Draize, John H., Woodard, Geoffrey, and Calvery, Herbert O., "Methods for the Study of Irritation and Toxicity of Substances Applied Topically to the Skin and Mucous Membranes," J. Pharm. & Exp. Ther. 82, 377 (1944).

TABLE A

Eye Irritation Test - Albino Rabbits

**Scale of Weighted Scores for
Grading the Severity of Ocular Lesions**

Ocular Tissues	Description	Grading	
Cornea	<u>Opacity (D)</u>		
	Opacity - Degree of density (area which is most dense is taken for reading).		
	Scattered or diffuse area, details of iris clearly visible.	1	
	Easily discernible translucent areas, details of iris slightly obscured.	2	
	Opalescent areas, no details of iris visible, size of pupil barely discernible.	3	
	Opaque, iris invisible.	4	
	<u>Area of Cornea Involved (A)</u>		
	One quarter (or less) but not zero.	1	
	Greater than one-quarter but less than one-half.	2	
	Greater than one-half but less than three-quarters.	3	
	Greater than three-quarters, up to whole area.	4	
	<u>Score equals D x A x 5</u>	<u>Total maximum = 80</u>	
	Iris	<u>Values</u>	
		Folds above normal, congestion, swelling, circumcorneal injection (any or all of these or a combination of any thereof), iris still reacting to light (sluggish reaction is positive).	1
No reaction to light, hemorrhage, gross destruction (any or all of these).		2	
<u>Score equals value x 5</u>		<u>Total maximum = 10</u>	

TABLE A continued

Eye Irritation Test - Albino Rabbits

Scale of Weighted Scores for
Grading the Severity of Ocular Lesions

Ocular Tissues	Description	Grading
Conjunctiva	<u>Redness (R)</u>	
	Redness (refers to palpebral conjunctiva only). Vessels definitely injected above normal.	1
	More diffuse, deeper crimson red, individual vessels not easily discernible.	2
	Diffuse beefy red.	3
	<u>Chemosis (S)</u>	
	Any swelling above normal (includes nictitating membrane).	1
	Obvious swelling with partial eversion of the lids.	2
	Swelling with lids about half-closed.	3
	Swelling with lids about half-closed to completely closed.	4
	<u>Discharge (D)</u>	
	Any amount different from normal (does not include small amount observed in inner canthus of normal animals).	1
	Discharge with moistening of the lids and hairs just adjacent to the lids.	2
Discharge with moistening of the lids and hairs and considerable area around eye.	3	
Score (R + S + D) x 2		Total maximum = 20

Note: The maximum total score is the sum of all scores obtained from the cornea, iris, and conjunctiva.

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The rating is obtained by selecting the maximum mean irritation score at one, 24, 48 or 72 hours after instillation. If the rate of dissipation of injury does not meet the requirements defined for the descriptive rating appropriate for a particular numerical score, the descriptive rating is raised by one or more levels. The rating system is presented in Table B.

TABLE B

Eye Irritation Test - Albino Rabbits

Classification of Test Materials
Based on Eye Irritation Properties

Rating	Range	Definition
Non-Irritating	0.0 - 0.5	To maintain this rating, all scores at the 24-hour reading must be zero; otherwise, increase rating one level.
Practically Non-Irritating	Greater than 0.5 - 2.5	To maintain this rating, all scores at the 24-hour reading must be zero; otherwise increase rating one level.
Minimally Irritating	Greater than 2.5 - 15.0	To maintain this rating, all scores at the 72-hour reading must be zero; otherwise, increase rating one level.
Mildly Irritating	Greater than 15.0 - 25.0	To maintain this rating, all scores at the 7-day reading must be zero; otherwise, increase rating one level.
Moderately Irritating	Greater than 25.0 - 50.0	To maintain this rating, scores at 7 days must be less than or equal to 10 for 60% or more of the animals. Also, mean 7-day score must be less than or equal to 20. If 7-day mean score is less than or equal to 20 but less than 60% of animals show score less than 10, then no animal among those showing scores greater than 10 can exceed a score of 30 if rating is to be maintained; otherwise, increase rating one level.
Severely Irritating	Greater than 50.0 - 80.0	To maintain this rating, scores at 7 days must be less than or equal to 30 for 60% or more of the animals. Also, mean 7-day score must be less than or equal to 40. If 7-day mean score is less than or equal to 40 but less than 60% of the animals show score less than or equal to 30, then no animal among those showing scores greater than 30 can exceed a score of 60 if rating is to be maintained; otherwise, increase rating one level.
Extremely Irritating	Greater than 80.0 - 110.0	

PRIMARY SKIN IRRITATION TEST - ALBINO RABBITS

Young albino rabbits of the New Zealand strain were used in the evaluation of the primary skin irritating properties of the test material.

The test procedure was modeled after that of Draize et al.*

Prior to the application of the test material, the hair was clipped from the back and flanks of each rabbit. Two test sites located lateral to the midline of the back approximately ten centimeters apart were selected. One of the two sites was abraded by making four epidermal incisions, two perpendicular to the other two, while the other test site remained intact.

The test material was applied to each of the test sites on each rabbit and occluded with gauze patches which were secured with masking tape. The trunk of each animal was then wrapped with impervious plastic sheeting. The wrap held the patches in position and retarded evaporation of the test material during the 24-hour exposure period.

At the end of 24 hours, the plastic wrappings, patches, and all residual test material were removed. The intact and abraded test sites were examined and scored separately for erythema and edema on a graded scale of 0 to 4. After 72 hours, the sites were again examined and scored.

* Draize, John H., Woodard, Geoffrey, and Calvery, Herbert O., "Methods for the Study of Irritation and Toxicity of Substances Applied Topically to the Skin and Mucous Membranes," J. Pharm. & Exp. Ther. 82, 377 (1944).

In evaluating the average irritation present, the mean scores for erythema and edema of the intact test sites after 24 and 72 hours were added. Similarly, the mean scores for erythema and edema of the abraded test sites after 24 and 72 hours were added. These two values were totaled and divided by four to obtain the mean primary irritation score.

The following grading system was used to arrive at a descriptive primary skin irritation rating:

<u>Mean Primary Irritation Score (Range of Values)</u>	<u>Descriptive Rating</u>
0	Nonirritating
0.1 - 0.5	Minimally Irritating
0.6 - 1.5	Slightly Irritating
1.6 - 3.0	Mildly Irritating
3.1 - 5.0	Moderately Irritating
5.1 - 6.5	Severely Irritating
6.6 - 8.0	Extremely Irritating

The scoring criteria for erythema and edema are shown in the following table:

TABLE

Primary Skin Irritation Test - Albino Rabbits

Scoring Criteria for Skin Reactions

Reactions	Description	Score
Erythema	Barely perceptible (Edges of area not defined)	1
	Pale red in color and area definable	2
	Definite red in color and area well-defined	3
	Best or crimson red in color	4
Edema	Barely perceptible (Edges of area not defined)	1
	Area definable but not raised more than 1 mm	2
	Area well-defined and raised approximately 1 mm	3
	Area raised more than 1 mm	4
Injury In Depth	Escharosis, Necrosis	8
	Maximum Primary Irritation Score =	8

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Products For Fabric Softeners



Detergents Division
Capital City Products
COMPANY

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INTRODUCTION

Capital City Products Company is one of the oldest vegetable oil refiners in the United States. The company has offered a wide range of oils, shortenings, margarines and specialty fats to the food industry for over 100 years.

In more recent years the Detergents Division of Capital City Products has diversified into fabric treating agents useful as antistats, fabric softeners and fiber lubricants. Capital City Products offers a complete line of fabric softener bases for use in dispersions, dryer systems, sprays and detergent-softener products.

This brochure describes the ACCOSOFT products, the chemical and physical properties of the ACCOSOFTS and their specialized uses. Formulation information is included to assist the manufacturers of household and industrial softening agents to produce top quality softening and anti-stat products.

The following table gives the properties of the ACCOSOFT products.

CHEMICAL STRUCTURE

Chemically, the ACCOSOFTS are quaternary ammonium salts. Quaternary ammonium salts are cationic surfactants having a strong positive electrical charge. For fabric softeners, long chain alkyl groups of the stearyl type are most effective. Two long alkyl chains are preferred in each quaternary molecule.

Fabrics possess a negative charge. Thus, the positively charged ACCOSOFT molecules are attracted to the fabric and tenaciously held to provide a conductive interface.

Since the cation tends to orient toward the fabric, the two long chains are exposed or oriented outward so as to give surface softness and lubricity.

With the exception of ACCOSOFT 707, all the ACCOSOFTS are methosulfate quaternaries. ACCOSOFT 707 is a methyl chloride quaternary of methyl dihydrogenated tallow amine. ACCOSOFT 748 is the dimethyl sulfate quaternary of methyl dihydrogenated tallow amine. ACCOSOFT 808 is the dimethyl sulfate quaternary of a ditallow imidazoline.

ACCOSOFT 550 and 620 cationics are complex tallow amido amine compounds. ACCOSOFT 620 is protected by U.S. Patent 3,933,871.

PERFORMANCE

ACCOSOFTS impart true softness or fluffiness to fabrics. Besides giving a soft full hand to fabrics, ACCOSOFTS reduce static cling, particularly from synthetics just removed from the household dryer. When used on permanent press fabrics ACCOSOFTS keep clothes free from lint and lint pick up.

Laboratory tests show ACCOSOFT 550 and ACCOSOFT 620 have excellent rewet characteristics. Tests also show that ACCOSOFTS are non-yellowing. Because of reduced wrinkling of the treated fabrics ironing is made easier and fabric scorch less readily.

Where a 90% solids, fluid softener base is desired, ACCOSOFT 550 L-90% and ACCOSOFT 620-90% are the products of choice.

ACCOSOFT 748 is the ideal softener base for use as a dryer softener. ACCOSOFT 748 gives good softening and excellent antistat effects.

HANDLING PROPERTIES

Those concerned with energy conservation will find ACCOSOFT 550-75 and ACCOSOFT 620-90 to have great appeal. They are fluid products at room temperature. Freshly drawn water will give a dispersion of outstanding stability with either ACCOSOFT 550-75 or ACCOSOFT 620-90. No heating is required.

ACCOSOFT 550-90, and ACCOSOFT 707-75 are pastes and require heat to melt to a usable dispersable state but the melted material can be readily dispersed in 80°F water.

ACCOSOFT 748-90 is a solid at room temperature and is used as the active softener/anti-stat in dryer type household products. ACCOSOFT 748 may be blended with nonionic release agents and sold as a formulated product meeting the specific needs of customers. These blends have melting points in the 120° to 150°F range.

PACKAGING

ACCOSOFTS are shipped in 4,000 to 6,000 gallon stainless steel tankwagons. Railroad tankcars of 10,000 gallon capacity are also available. Drum shipments are made in non-returnable, openhead, lined, 55 gallon steel drums. All softeners are shipped in drums at 425# net with the exception of ACCOSOFT 707 and ACCOSOFT 748 which are shipped at 390# net.

FLAMMABILITY

Some ACCOSOFTS contain isopropanol as a solvent. Isopropanol has an extremely low flash point (53°F). Caution should be used when warming drums or heating the softener base. ACCOSOFT 550-90 has a closed cup flash point of 90°F. ACCOSOFT 550 HF 90% has a flash point of 110°F and is supplied to customers desiring this high flash point.

ACCOSOFT 748, the dryer base can be formulated with release agents to give an isopropanol free system with a flash point above 200°F.

ACCOSOFT M1154 is not a flammable material.

DISPERSION FORMULATIONS FOR HOUSEHOLD USE

ACCOSOFT 550-75, ACCOSOFT 550 L-90 and ACCOSOFT 620-90 are fluid at 80°F; they can be readily pumped or transferred to and from storage.

They can be used to produce stable dispersions with unheated tap water. For ease of mixing, the softener should always be added to the water or gelling will occur.

Recommended concentrations for the household laundry softener market range from 3.5 to 8.0% active ingredient dispersed in water. See the Table following for batch size data.

Once a uniform softener dispersion has been prepared by good agitation, dye, perfume, optical brightener and an antifoam agent can be added as desired.

A particularly attractive feature of ACCOSOFT 550 is that this softener base can be dispersed at 6.5% solids to give stable, rich, creamy dispersions of 100 to 200 cs viscosity.

SOFTENER FORMULATION BATCH SIZE

Dispersion Actives		ACCOSOFT	3.5% Solids	Water Added	
				5.0% Solids	8.0 Solids
ACCOSOFT 75% Solids	Lbs.	425	8663	5914	3540
	Gal.	55	1040	710	425
ACCOSOFT 90% Solids	Lbs.	425	10495	7225	4356
	Gal.	55	1260	867	523
Label Instructions For Household Use	Cup:		1-3-1 2	1-4	1-8
	Ounces:		3-4	2-2½	1-1½

ADDITIVES FOR FORMULATING FABRIC SOFTENER DISPERSIONS

Formulations of household fabric softeners should include dye, perfume, optical brightener and defoamer. In general, perfumes and dyes are subject to specific customer preference. Close work with perfume and dye suppliers in formulating your softener dispersion is recommended. The list of dyes and perfumes given here should be regarded only as a starting point for the formulation of your fabric softener.

PERFUMES AND FRAGRANCES

Givaudan

DTC - 10,040/7

DTV - 472/4C

Perry Brothers

074-838 M75-262

074-839 M75-263

074-840 F75-439

Roure Bertrand DuPont

C 5261 E-5372

C 5263 E-5371

DYES

Pink

Intracid Rhodamine B, Crompton & Knowles Corp.

Sandolan Rhodamine E-B, Sandoz

Blue

Intracid Pure Blue L, Crompton & Knowles Corp.

Nylosan Blue FML, Sandoz

Optical Brightener

Aclarat 8678, Sandoz

Hiltamine Arctic White SC, Hilton Davis

Hiltamine Arctic White, TX, Hilton Davis

Intrawite RW, Crompton & Knowles Corp.

Sandoz TH-40 Liquid, Sandoz

Tinopal CBS, Geigy

Tinopal LTW, Geigy

Antifoam Agent

Antifoam B, Dow Corning

Antifoam DB-31, Dow Corning

Antifoam DB-110, Dow Corning

AF-93, General Electric

DRYER SOFTENER PRODUCTS

- Dryer softener products now account for about half the household fabric softener market. These products have gained rapid and wide acceptance. Although inferior to rinse additive softeners in actual fabric softening, they are easy to use and are excellent for use in reducing synthetic fabric static cling.

ACCOSOFT 748-90, a dimethyl sulfate quaternary of methyl dihydrogenated tallow amine, is the work horse in industry for use in the dryer products.

The dryer products on the market are usually nonwoven fabric sheets or polyurethane foam sponges impregnated with softener base. To aid in the transfer of the softener from the sheet or sponge to the fabric, a release agent is blended with the softener. Release agents are usually higher molecular weight nonionic surfactants with melting points in the 130°F range.

Because each customer has special product performance requirements ACCOSOFT 748-90 is formulated with specific release agents to meet these needs. Because the softener base and the release agents are high melting solids custom blending is available.

Fabric Softener manufacturers who are not equipped to coat softener bases on sheets can promote the use of their dispersions in the household dryer. By pouring the softener dispersion on a small damp cloth and placing it into the dryer with wet clothes, adequate softening and static cling reduction of the wash load can be obtained. This is not recommended for blue dispersions as fabric discoloration from the blue dye can occur.

Although dimethyl dihydrogenated tallow ammonium methyl sulfate is the work horse of the dryer industry, it is also very expensive. There are available several economical higher melting quaternaries that will give competitive softening and antistat performance. We can supply these at your request.

DETERGENT-SOFTENER FORMULATIONS

Combination detergent-softener products are now on the market. These use essentially nonionic-cationic softener blends. They give acceptable cleaning and softening performance. Any softener dispersion formulator has the equipment needed to make these products. A number of useful starting formulations using ACCOSOFT family of softeners for detergent-softeners are available.

ACCOSOFT M-1154, produced specifically for detergent softener systems, gives good softening and antistat properties. ACCOSOFT M-1154 when formulated in a detergent-softener will not cause fabric yellowing on repeated washings. Other detergent-softener products on the market today may have a yellowing problem.

ACCOSOFT LC Base is a combination of cationic and anionic surface active agents designed to be used with a nonionic surfactant as a liquid detergent softener household product. When combined with nonionics, it shows superior performance in detergency, soil anti-redeposition, fabric softening and anti-static properties as compared to products we have examined now on the market.

Request our Technical Data Sheet on ACCOSOFT LC Base. Formulation information is included as well as Performance results including Detergency, Softening, and Anti Stat.

By using special additive packages or formulations, the ACCOSOFT 550 and ACCOSOFT 620 series can be used to give highly effective detergent softeners.

CONCENTRATES OR HIGH SOLIDS DISPERSIONS

ACCOSOFT 620 is especially suited to the manufacture of dispersions of up to 20% softener solids. Such dispersions can be prepared at solids levels of 15 to 20% by use of 1% sodium chloride to maintain dispersion viscosities under 1000 cps.

The preferred procedure for manufacture of a dispersion of 15 to 20% solids is to add 0.1-0.2% by weight of sodium chloride to 120°F water. Slowly add the liquid ACCOSOFT 620 along with increments of sodium chloride until a total of 0.8% sodium chloride has been added. When all of the ACCOSOFT 620 has been added and well dispersed, 0.2% sodium chloride is added. Thus, a total of 1% sodium chloride is added based on total weight of the dispersion. Such dispersions maintain a stable viscosity even after 40°F storage for extended time periods.

Care should be taken to prevent whipping air into the dispersion as at these high solids air will tend to remain suspended thus increasing the viscosity of the dispersion.

After a uniform softener dispersion has been prepared by good agitation, dye, perfume and optical brightener may be added as desired.

ACCOSOFT 550 may also be used to prepare 15 to 20% solids dispersions. Viscosity of the finished 550 dispersions is higher than the 620 dispersion, however.

PRECAUTIONARY HANDLING

All ACCOSOFTS are biodegradable; however, since softener dispersions can support bacterial growth, care should be taken to prevent bacterial growth during manufacture, storage and use.

Treatment of the water used in the dispersion with chlorine bleach or addition of Givaudan's Giv-Gard DXN at the manufacturer's suggested use levels can be effective. Adjusting the finished dispersion to pH 4.0 is also effective.

FABRIC SOFTENERS IN COMMERCIAL LAUNDRIES

Fabric softeners have great economic value in commercial laundries. Lubricity, softening and antistatic properties imparted to the fabrics permit greater ease and speed of handling. For example, by using softener, loads of sheets pull easier. Shake-outs are faster and easier. Tumble drying times are reduced. Faster feeding through flat work ironers and elimination of static electricity on the units are achieved. Laundry plant efficiency and the quality of the finished fabric with respect to feel and static cling are improved.

Industrial or commercial softeners are generally more concentrated than household products. A viscous gel-like formulation which has found wide acceptance is prepared from:

ACCOSOFT 550-75	53 parts
Water	47 parts

This formulation is 40% active. A use level would be 1 to 2 oz. per 100 lbs. of fabric.

Where more fluidity for handling ease is desired the following formulation is suggested:

ACCOSOFT 620-90	66 parts
Isopropanol	10 parts
Light Mineral Oil	6 parts
Water	23 parts

This formulation is higher in actives at 56%. A use level for this formulation would be 2/3 to 1 1/2 ounces per 100 lbs. of fabric.

These concentrates can be diluted by the launderer with water to give more fluid formulations as desired.

TOXICITY

ACCOSOFT 550 and ACCOSOFT 620 at 4 to 8% dispersions are considered non-toxic within the meaning of the Federal Hazardous Substances Act.

Test procedures specified by the Federal Hazardous Substances Act show these softener bases are not skin irritants.

WARRANTY

Formulations and data are based on information believed by us to be reliable but cannot be guaranteed since conditions and methods of use of the products described herein are beyond our control. Users should make their own tests to determine the suitability of these products for their own purposes. Statements concerning the use of our products should not be construed as a recommendation that they be used in violation of any patent.

CAPITAL CITY PRODUCTS COMPANY

Sales Offices

Capital City Products Company
Chemical Specialties Division
525 W. First Ave., Columbus, OH 43215
(614) 229-3131

Mailing Address: P.O. Box 569
Columbus, OH 43216-0569

Capital City Products Company
Chemical Specialties / Detergents Division
Armstrong Chemical Plant
1530 S. Jackson Street, Janesville, WV 53545
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Janesville, WI 53547-1759

Capital City Products Company
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(201) 997-4300

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Harrison, NJ 07029-1025

CAS #68410-69-5

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Form Approved
OMB No. 44-R1387

MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Capital City Products Company Armstrong Chemical Plant		EMERGENCY TELEPHONE NO. 608-752-9007
ADDRESS (Number, Street, City, State, and ZIP Code) 1530 S. Jackson Street, Janesville, Wisconsin 53545		
CHEMICAL NAME AND SYNONYMS Di Tallow Amido Ammonium Metho Sulfate	TRADE NAME AND SYNONYMS ACCOSOFT 550 (90%) HHV	
CHEMICAL FAMILY Quaternary Ammonium Compound	FORMULA ACCOSOFT 550 (90%)	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS Isopropanol	10	400ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H ₂ O=1)	0.96
VAPOR PRESSURE (mm Hg.)		PERCENT VOLATILE BY VOLUME (%)	10%
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	Dispersible		
APPEARANCE AND ODOR	Amber Hazy Liquid - IPA Type Odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	89°F Closed Cup	FLAMMABLE LIMITS	Let	Uet
EXTINGUISHING MEDIA	Fog, CO₂, Dry Chemical, Alcohol Foam			
SPECIAL FIRE FIGHTING PROCEDURES				
UNUSUAL FIRE AND EXPLOSION HAZARDS				
Flammable Liquid				

Information on this form is furnished solely for the purpose of compliance with Occupational Safety and Health Act of 1970 and shall not be used for any other purpose. Use or dissemination of all or any part of this information for any other purpose may result in a violation of law or constitute grounds for legal action.

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Isopropanol 400 ppm **LD₅₀ for the softener base is 15,380 mg./kg.**

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

For Eye Contamination - Flush with water.

For Skin Contamination - Flush with soap & water.

For Internal Contamination - Call a physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY <i>(Illustrate as applicable)</i> Strong oxidizing agents			
HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition will result in formation of toxic products.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Eliminate ignition source. Stop spill at source.

Contain spill by dike, etc. Pump into salvage tank.

WASTE DISPOSAL METHOD

Liquid incineration with off gas scrubbing.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION *(Specify type)*

VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL <i>(General)</i> Explosion Proof	OTHER
PROTECTIVE GLOVES	Yes	EYE PROTECTION Safety Glasses
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Good housekeeping procedures. Store below 120°F to maintain

color quality of product.

OTHER PRECAUTIONS

Keep away from ignition source as product has 89°F flash point.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Vendor assumes no responsibility for injury to vendor or third persons proximately caused by the use of this material if reasonable safety procedures are not followed in the use thereof. Additionally, vendor assumes no responsibility for injury to vendor or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendor assumes the risk in his use of the material.

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Occupational Safety and Health Administration

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MATERIAL SAFETY DATA SHEET

Required under USDL Safety and Health Regulations for Ship Repairing,
Shipbuilding, and Shipbreaking (29 CFR 1915, 1916, 1917)

SECTION I

MANUFACTURER'S NAME Capital City Products Company		EMERGENCY TELEPHONE NO.
Armstrong Chemical Plant		608-752-9007
ADDRESS (Number, Street, City, State, and ZIP Code) 1530 South Jackson Street, Janesville, Wisconsin 53545		
CHEMICAL NAME AND SYNONYMS Dialloy Amido Ammonium Metho Sulfate		TRADE NAME AND SYNONYMS ACCOSOFT 550 (75%)
CHEMICAL FAMILY Quaternary Ammonium Compound	FORMULA	

SECTION II - HAZARDOUS INGREDIENTS

PAINTS, PRESERVATIVES, & SOLVENTS	%	TLV (Units)	ALLOYS AND METALLIC COATINGS	%	TLV (Units)
PIGMENTS			BASE METAL		
CATALYST			ALLOYS		
VEHICLE			METALLIC COATINGS		
SOLVENTS Isopropanol	25	400ppm	FILLER METAL PLUS COATING OR CORE FLUX		
ADDITIVES			OTHERS		
OTHERS					
HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES				%	TLV (Units)

SECTION III - PHYSICAL DATA

BOILING POINT (°F.)		SPECIFIC GRAVITY (H ₂ O=1)	0.96
VAPOR PRESSURE (mm. Hg.)		PERCENT VOLATILE BY VOLUME (%)	25
VAPOR DENSITY (AIR=1)		EVAPORATION RATE (_____ =1)	
SOLUBILITY IN WATER	Dispersible		
APPEARANCE AND ODOR	Amber Hazy Liquid, IPA Type Odor		

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) 65°F Closed Cup	FLAMMABLE LIMITS	Lel	Uel
EXTINGUISHING MEDIA Fog, CO₂, Dry Chemical, Alcohol Foam			
SPECIAL FIRE FIGHTING PROCEDURES			
UNUSUAL FIRE AND EXPLOSION HAZARDS Flammable Liquid			

SECTION V - HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE
Isopropanol 400 ppm; Oral LD50 15,380 mg/kg.

EFFECTS OF OVEREXPOSURE

EMERGENCY AND FIRST AID PROCEDURES

For Eye Contamination - Flush with water.

For Skin Contamination - Flush with soap & water.

For Internal Contamination - Call a physician.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) Strong Oxidizing Agents			
HAZARDOUS DECOMPOSITION PRODUCTS Thermal decomposition will result in formation of toxic products.			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Eliminate ignition sources. Stop spill at source. Contain spill by dike, etc. Pump into salvage tank.

WASTE DISPOSAL METHOD
Liquid incineration with off gas scrubbing.

SECTION VIII - SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type)		
VENTILATION	LOCAL EXHAUST	SPECIAL
	MECHANICAL (General) Explosion Proof	OTHER
PROTECTIVE GLOVES Yes	EYE PROTECTION Safety Glasses	
OTHER PROTECTIVE EQUIPMENT		

SECTION IX - SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING
Good housekeeping procedures. Store below 120°F to maintain color quality of product.

OTHER PRECAUTIONS
Keep away from ignition sources as product has 65°F flash point.

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the use thereof.

Vendor assumes no responsibility for injury to vendor or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendor or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendor assumes the risk in his use of the material.

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MATERIAL SAFETY DATA SHEET

Capital City Products Company
 Armstrong Chemical Plant
 1530 South Jackson Street
 Janesville, Wisconsin 53545

Phone: (608) 752-9007

Trade Name: Accosoft 808 75
 C.A.S. #: 68122-86-1
 Reg. #: N/A
 ECHOI #: N/A
 Update: 12-Nov-86
 Prepared By: TH

Section I. MATERIAL IDENTIFICATION

Chemical Name: Methyl Di Tallow Imidazolium Methosulfate Quat
 Chemical Family: Quaternary Ammonium Compound
 Trade Name: Accosoft 808 75
 Formula:

Section II. COMPOSITION AND HAZARDS

Isopropanol - 22%

Section III. PHYSICAL DATA

Evaporation Rate:	Nil
Percent Volatiles:	See Section II.
Boiling Point (°F):	>500
Vapor Pressure (mmHg.):	N/A
Specific Gravity (H ₂ O=1):	8.0
Solubility in Water:	Disperses
Appearance and Odor:	Amber Yellow Liquid; Alcohol Odor

Section IV. FIRE AND EXPLOSION DATA

Flash Point (°F) COC - A.O.C.S.:	66
Extinguishing Media:	Foam, Carbon Dioxide, Inert Powder
Special Fire Fighting Procedures:	Treat as Fat or Oil Fire
Unusual Fire and Explosion Hazards:	Avoid use of water in extinguishing fire. Fine oil mists may be hazardous. At times oil soaked rags may spontaneously heat and ignite when exposed to air.
	None

Section V. HEALTH HAZARD DATA

Threshold Limit Value:	No Adverse Effects Known
Effects of Overexposure:	
Emergency and First Aid Procedure:	
	Skin - Wash with soap and water.
	Eyes - Flush with water.
	Ingestion - See Physician

Section VI. REACTIVITY DATA

Stability:	Stable
Conditions to Avoid:	None
Incompatibility (Material to Avoid):	Strong Oxidizing Agents
Hazardous Decomposition Products:	Toxic Products
Hazardous Polymerization:	None
Conditions to Avoid:	No Others

Section VII. SPILL OR LEAK PROCEDURES

Steps to be taken in case Accosoft 808 75 is spilled.

Small spill: Add solid absorbent and shovel into disposable containers. If solidified shovel into containers. Wash floors with detergent or soap and hot water. May cause slipping on floors.

Waste disposal method: Dispose in accordance with local, state, and Federal regulations.

Section VIII. SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type):	In presence of vegetable oil mists or dusts, use of a NIOSH respiratory mask is recommended.
Ventilation - Local Exhaust:	Yes, when dealing with mists or dusts.
Protective Gloves:	Neoprene for Hot Oil
Eye Protection:	Goggles for Hot Oil
Other Protective Equipment:	Rubber Boots & Apron for Hot Oils

Section IX. SPECIAL PRECAUTIONS AND COMMENTS

Precautions to be taken in handling and storing:

At times oil soaked materials may spontaneously combust. Do not allow absorptive materials to accumulate in closed conditions when exposed to air.

Store below 120°F to maintain color quality of product.

Comments: Vegetable oil mists were classified as "nuisance particulates" by the American Conference of Governmental Industrial Hygienists (no health effects reported).

Eliminate ignition sources. Keep away from ignition sources. Use explosion proof ventilation system.

Information presented herein has been compiled from sources considered by the company, in good faith, to be dependable and is accurate and reliable to the best of our knowledge and belief. However, the company cannot make any warranty or representation respecting the accuracy or completeness of the data and assumes no responsibility for any liability or damages relating thereto or for advising you regarding the protection of your employees, customers or others. Users should make their own tests to determine the applicability of such information or suitability of any products for specific use.