

26 pp

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DuPont Chemical Solutions Enterprise

September 24, 2001

Karen Lannon
U.S. EPA, OPPTS
Document Control Center
401M Street, S.W. (TS-7407)
Washington, DC 20460

AR 226

6301 0000016

Reference: AR266

Dear Ms. Lannon:

I have once again prepared authentic sanitized copies of the two presentations we gave on February 21, 2001. A paper copy of each presentation is enclosed for the public record.

These presentations are as follows:

"DuPont Research Program Update and Status Report" - February 21, 2001

and

"Telomer Research Program Update and Status Report" - February 21, 2001.

Each of these reports has been company sanitized. They do not contain TSCA CBI. Each and every chart that has had CBI removed has been marked with the following note: "CBI Information has been redacted."

Please let me know if you have any additional questions on these two documents. You can reach me via phone on (302)992-3672 or fax on (302)892-1135. My email address is stephen.h.korzeniowski@usa.dupont.com.

With regards,

Steve

Stephen H. Korzeniowski
Market & Business Manager

SHK/klo
Attachment

Company Sanitized

DuPont Research Program Update and Status Report

Company Sanitized

Presented to U.S. EPA, OPPT
21 February, 2001

Agenda

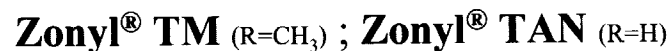
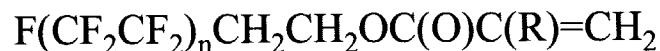
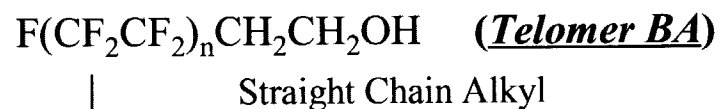
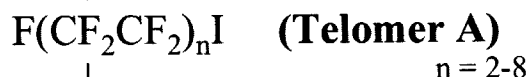
- Overview
- Toxicology & Descriptive Biology
- Environmental Fate
- Environmental Effects
- Summary & Path Forward

DuPont Effort Overview

CBI Information has been
redacted

DuPont Fluorotelomer Product Groups: Intermediates, Surfactants, Polymers

1) Intermediates



Sales Products

2) Surfactants / "Molecules"

- Anionic - Phosphate, Carboxylate, Sulfonate
- Nonionic - Ethoxylate
- Betaine

3) Polymers

- Acrylic
- Ester
- Amide
- Urethane
- Urea

Toxicity Database : **High Production Volume Chemicals**

Acute Toxicity

- Oral, Inhalation
- Eye, Skin Irritation
- Skin Sensitization

Repeat Dose Toxicity

Oral, Dermal
Inhalation (AEL)

Genetic Toxicity

Developmental Toxicity

Reproductive Toxicity

Eco-toxicity

Aquatic Toxicity

Environmental Fate & Effects

U.S. ITC #45,46 Requests

TOXICITY DATABASE – DuPont Fluorotelomers

	<u>Intermediates</u>	<u>Surfactants</u>	<u>Polymers</u>
<u>Acute Toxicity</u>			
Oral			
Dermal Absorption			
Inhalation			
Irritation – Eye	CBI Information has been redacted		
Irritation – Skin			
Skin Sensitization			
<u>Repeated Dose Toxicity</u>			
Oral			
Dermal			
Inhalation			

TOXICITY DATABASE – DuPont Fluorotelomers

Intermediates

Surfactants

Polymers

Genotoxicity

Gene Mutation

Ames

Others

Chromosome Aberration

In Vitro (CHO)

In Vivo

Developmental Toxicity

Rodent

Non-Rodent

Reproductive Toxicity

Structural Evaluation

Functional Evaluation

CBI Information has been
redacted

TOXICITY DATABASE – DuPont Fluorotelomers

Intermediates Surfactants Polymers

Ecotoxicity

Aquatic Tox. Fish
Daphnia
Algae

Environmental Fate

Log Kow
Biodegradation
Accumulation
Persistence

CBI Information has been
redacted

DuPont Toxicology Studies Timeline

CBI Information has been
redacted

Toxicology Studies : Zonyl®XXX

- Repeated Dose Toxicity:
- Genetic Toxicity:
- Developmental Toxicity:
- Reproductive Toxicity:
- Biopersistence: 10 day oral rat
- Environmental Toxicity:

CBI Information has been
redacted

Zonyl® XXX Studies : Update

- 90 Day Oral Gavage, One-Generation Reproduction

CBI Information has been
redacted

Zonyl® XXX Studies : Update

Present Findings

90-day

CBI Information has been
redacted

Reproduction

Zonyl® XXX Studies : Update

- Developmental Toxicity
- Genetic Toxicity:
- Aquatic Bioconcentration Screen :

CBI Information has been redacted

DuPont Toxicology Studies : Timeline

CBI Information has been redacted

Zonyl[®]XX Kinetics

CBI Information has been redacted

Kinetics

CBI Information has been redacted

Radiolabeled Telomers



Needed for Pharmacokinetics & Environmental Fate Studies

CBI Information has been redacted

Radiolabeled : Synthesis Route “A”

CBI Information has been redacted

Environmental Compartments

based on emissions assessment

CBI Information has been
redacted

Environmental Fate & Effects Work Plan

Physical Properties

- UV/Visible Spectrum
- Water Solubility
- Adsorption to Glass
- Air-Water Partition Coefficient

CBI Information has
been redacted

Environmental Fate : Abiotic

- Hydrolysis
- Adsorption / Desorption
- Indirect Photolysis in Air

Environmental Fate : Biotic

- Anaerobic Biodegradation*
- Aerobic Biodegradation*
(* *Radiolabeled Material*)

Environmental Effects

- Bioconcentration Factor
- 90 Day Early Life Stage Study –
Rainbow Trout
- 21 Day Invertebrate Daphnia Study

DuPont Environmental Fate & Effects Studies

- Focus on :
 - Acute Aquatic Toxicity (Daphnia, Algae, Fish)
 - Adsorption / Desorption
 - Biodegradation
 - Chronic Aquatic Toxicity (Daphnia, Trout)
 - Bioconcentration Screening

CBI Information has been redacted

Zonyl[®] TEL-X

- $\text{F}(\text{CF}_2\text{CF}_2)_n\text{CH}_2\text{CH}_2\text{X}$ $n=3-6$

CBI Information has been redacted

DuPont Environmental Fate & Effects Timeline

CBI Information has been redacted

BCF Screening Protocol

Objective:

To compare the uptake and depuration in fathead minnow for a series of fluorotelomer intermediate, surfactant and polymeric products.

Method:

- uptake (14 days continuous exposure) and depuration (14 days) phases
- analytical confirmation of test concentrations and tissue residues
- analysis by total organic fluorine on a dose-normalized basis

Results:

- Whole fish bioconcentration factors for the series of test materials

DuPont Path Forward Items

- Toxicology & Descriptive Biology
- Environmental Fate
- Environmental Effects
- Summary & Path Forward