ENVIRONMENTAL FATE

TEST	MCS-1558	MCS-1560
Semi-Continuous Activated Sludge Biodegradation 24hr	99+% (3 ppm) 63 % (10 ppm)	97% (3 ppm) 99% (10 ppm)
CO_2 Evolution C14 labelled	<2%	12%
Soil Biodegradation	45% (<1% CO_2)	45% (<1%) (CO_2) C_{14}
River Water Biodegradation	high primary low ultimate	high primary low ultimate
Photodegradation	insignificant	insignificant

~~CDP~~ = Triphenylphosphate and TPP biodegradation

Tests Scheduled for 1978 (Both Products)

River water biodegradation using phenyl-ring labelled products.
Octanol - water partition coefficients.
Water solubility.

Tentative Tests

Partitioning and biodegradability in sediment/water.
Photodegradation in presence of sensitizers and complexing metals.

Early fall.

DSW 270254

AQUATIC TOXICITY

TEST	TOXICITY (PPM) MCS-1558	MCS-1560	CONTRACTOR
LC-50			
Bluegill (96h)	>1000	32	IBT
Rainbow Trout (96h)	>1000	32	IBT
Bluegill (96h)	<5 (RF)	<0.75	ES
Daphnia (48h)	-	0.5	ES

Tests Scheduled for 1978 (Both Products)

Algal acute toxicity.
Daphnia magna acute toxicity. .5ppm
Bluegill acute toxicity - static and continuous flow.
Bluegill bioconcentration - uptake and depuration.
Daphnia magna chronic.

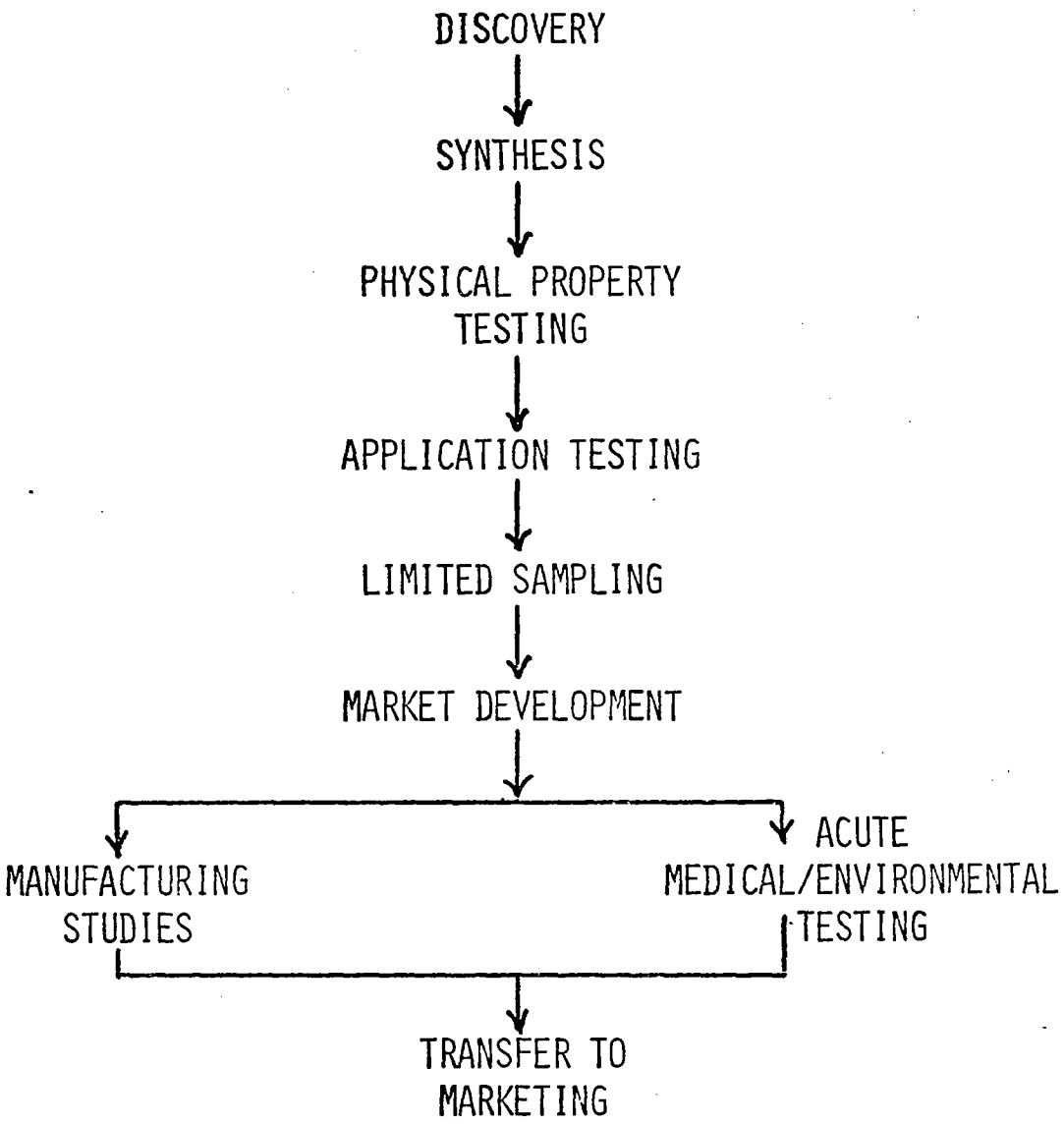
Potential Tests for 1979

Fish egg-fry study.

Acute more toxic

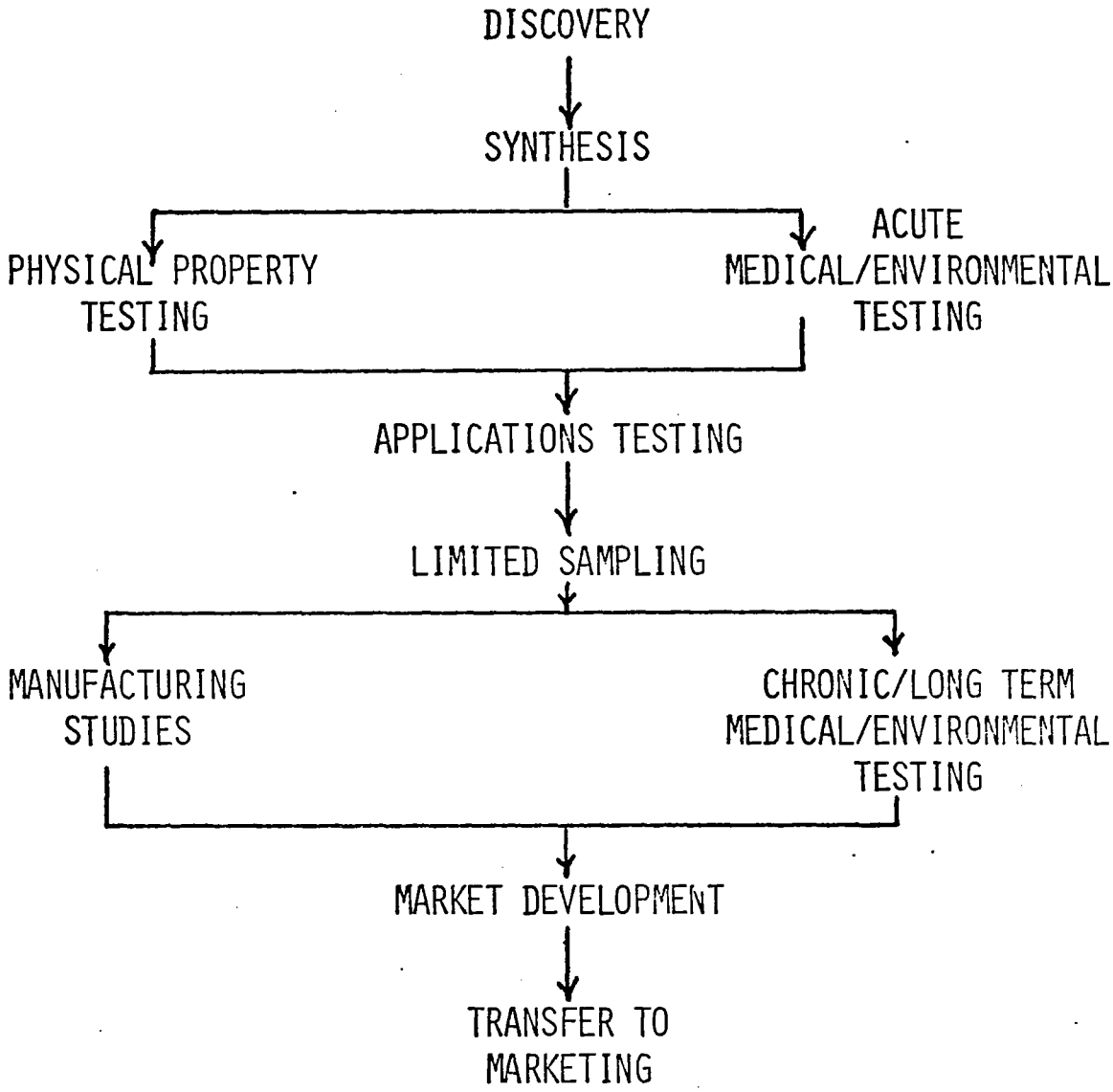
DSW 270255

THE GOOD OLD DAYS



DSW 270256

TODAY



DSW 270257

CPPM COMMERCIAL DEVELOPMENT

- DOES NOT INFRINGE ON CURRENT PYDRAUL® AND THERMINOL® MARKETS

- CONCENTRATING ON HIGH-PERFORMANCE, HIGH-PROFIT, LOW VOLUME APPLICATIONS, LONG-TERM APPLICATIONS.

DSW 270258

HYDRAULIC FLUID

- OFF-ROAD VEHICLE HYDRAULICS *Effort concentrated here*

- DRIVING FORCE IS HIGHER SYSTEM OPERATING TEMPERATURES IN NEW DESIGNS.

- WORKING WITH INDUSTRY LEADER, CATERPILLAR
  Only C. understand need for new fluid

- MINIMUM APPLICATIONS WORK TO DATE

- FUTURE WORK WILL INCLUDE DEVELOPMENT OF A BENCH SCALE TEST TO SIMULATE CATERPILLAR NEEDS.

DSW 270259

STLCOPCB4054333

CATERPILLAR

- WANT A HIGH PERFORMANCE FR HYDRAULIC FLUID WITH:

  1. LUBRICITY EQUAL TO 10W OIL

  2. AT LEAST 250° BULK OPERATING TEMPERATURE CAPABILITY

  3. "IMPROVED" FR COMPARED TO CURRENT FLUIDS

- CURRENT COMMERCIAL PHOSPHATE ESTERS WILL NOT PASS THEIR LUBRICITY REQUIREMENTS.

- STAUFFER HAVE A DEVELOPMENTAL PHOSPHATE ESTER WHICH PASSES CATERPILLAR'S INITIAL TESTING.. ~~&~~ LUBRICITY FATIGUE LIFE IS A PROBLEM.

- OUR FIRST CPPM FORMULATION, MCS-1974, DID NOT PASS THEIR VC-3 TEST.

DSW 270260

HEAT TRANSFER

- SOLAR ENERGY HEAT TRANSFER

- SAMPLES UNDER EVALUATION BY THREE COMPANIES

  HONEYWELL

  SCIENTIFIC ATLANTA

  FUTURAMICS.

- FUTURE WORK INCLUDES FIRE TESTING AND HEAT TRANSFER LOOP

DSW 270261

DIELECTRIC FLUID

- TWO CUSTOMERS HAVE COME TO US ASKING FOR SAMPLES.

GENERAL ELECTRIC

- NO INTERNAL WORK CURRENTLY PLANNED.

DSW 270262

EUROPE

- CPPM "INTRODUCED" AT LOUVAIN LA NEUVE 2/16/78.

- STILL USING PCB (GERMAN MINES) 2.3M lbs per year.

- SEVERAL YEARS BEHIND U.S. ON REMOVAL OF PCB FROM THE MARKETPLACE.

- "EXISTING" MARKETS AVAILABLE FOR CPPM IN:

  HYDRAULICS JUNE 1st.
  DIELECTRICS
  HEAT TRANSFER

- MARKET SURVEY IS BEING ASSEMBLED BY J. N. HAGGART FOR 9/15/78 DEADLINE.

- POTENTIALLY LESS COSTLY MANUFACTURE

less costly to produce in Europe?

DSW 270263

QUESTIONS

1. WHAT HURDLES DO WE CROSS PRIOR TO COMMITING TO THE EXPENSIVE LONG-TERM TOXICITY WORK? $ 3 or 6000M

2. WHAT SCOPE SHOULD THE MARKET DEVELOPMENT WORK TAKE? Replacement of Existing Chemicals

3. WHAT IS EUROPE'S ROLE IN THE DEVELOPMENT OF CPPM?

4. INTERNAL MANUFACTURE OR TOLL CONVERSION? U.S. OR EX U.S.?

5. IF WE DON'T HAVE A PROPRIETARY POSITION, HOW CAN WE BEST DEVELOP CPPM?

DSW 270264