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POLYSTYRENE
AP-42
Section 5.13.3
Reference Number
7

Standard Oil Company (In

200 East Randolph Drive
Chicago, Illinois 60601
Environmental & Energy Conservation Division
Environmental Conservation & Toxicology Department
312-856-2829

Richard A. Symuleski
Coordinator, Environmental Conservation (Chemicals)

July 2, 1981

Mr. Askadorn Limpiti
Energy and Environmental Analysis, Inc.
3101 East Guess Road
Durham, NC 27705

Dear Mr. Limpiti:

This transmittal documents our Work Group's preliminary response to the questions raised in your June 18 letter regarding information pertinent to the Polymers/Resins CTG activity. Because the time available for our response was very short, we are not prepared to respond to your questions on flares at this time. However, our Work Group is pursuing the information on this topic and will respond on this item at a later date.

With respect to the other questions you posed, the following responses should satisfy your needs. Any questions you may have regarding our comments should serve as a useful basis for discussion at our meeting on July 6.

Very truly yours,


RAS/dms
Mail Code 3801

Attachment

James C. Berry, USEPA/RTP
Janet S. Matey, CMA

ATTACHMENT

I. AQCR Ozone Attainment Status

To determine whether individual polymer/resins plants were in ozone non-attainment areas requesting extensions, the following procedure was used. All polypropylene, high density polyethylene and polystyrene plants identified in the Pullman Kellogg Industry Ranking report were checked to determine whether they were located in ozone non-attainment AQCR's. The BNA Environment Reporter AQCR Listing, § 121, was used as a reference. This listing includes all USEPA attainment status designations and changes through March 12, 1981. As the next step, either Regional USEPA offices or the individual state air pollution control agencies having jurisdiction over polymers/resins plants located in ozone non-attainment areas were then contacted to determine whether they have filed for extensions from the attainment date. All plants manufacturing the three resins of interest that were listed in the Pullman Kellogg report and were found to be in ozone non-attainment areas are listed below. Those plants located in AQCR's for which extensions have been filed are marked with an asterisk. With respect to the Houston-Galveston Metro Area AQCR (AQCR 216), an extension has been requested for Harris County only. We believe our plant listing is more accurate than the information presented in the preliminary draft CTG and your June 18 letter.

A. Polypropylene

- *ARCO Polymers, LaPorte
Texas Eastman, Longview
- *Exxon Chemical, Baytown
Hercules Polymers, Lake Charles, LA
Northern Petrochemicals, Morris, IL
- *Novamont, LaPort, TX
- *Phillips Petroleum, Pasadena, TX
Shell Chemical, Norco, LA
- *Shell Chemical, Woodbury, NJ
- *Soltex, Deer Park, TX
Amoco Chemicals, Chocolate Bayou, TX
- *El Paso/Rexene, Bayport, TX
El Paso/Rexene, Odessa, TX

With respect to the plants in your June 18 listing, we have the following comments/corrections.

- | | |
|--------------------------------------|----------------------------------|
| Allied Resins, Conneaut, OH | does not exist |
| Amoco Chemicals, Sugar Creek, MO | viscous polypropene |
| Amoco Chemicals, Alvin, TX | } same plant |
| Amoco Chemicals, Chocolate Bayou, TX | |
| Hercules Polymers, Pasadena, TX | } same plant at Bayport, TX, NAR |
| Hercules Polymers, Baytown, TX | |

Hercules Polymers, Hattiesburg, MS	product fabrication
Hercules Polymers, Lake Charles, LA	NANR
Northern Petrochemical, Morris, IL	NANR
Reactor Laboratory, Peterson, NJ	cannot confirm existence
Rohm & Haas, Calumet City, IL	polyvinyl acetate
Emser Industry, Teaneck, NJ	cannot confirm existence
USS Chemicals, Houston, TX	same as USS Novamont, LaPorte, TX

B. High Density Polyethylene

Allied Chemical, Baton Rouge, LA
 ARCO Polymers, Port Arthur, TX
 Citgo Chemicals, Texas City, TX
 Dow Chemicals, Freeport, TX
 Dow Chemicals, Plaquemine, LA
 E. I. DuPont de Nemours, Orange, TX
 E. I. DuPont de Nemours, Victoria, TX
 Gulf Oil Chemicals, Orange, TX
 Hercules Polymers, Lake Charles, LA
 *National Petrochemicals, LaPorte, TX
 *Phillips Petroleum, Pasadena, TX
 *Soltex, Deer Park, TX
 Amoco Chemicals, Chocolate Bayou, TX
 Union Carbide, Seadrift, TX

The following comments are provided concerning the plants in your June 18 listing.

Allied Resins, Conneaut, OH	does not exist
ARCO Polymers, Port Arthur, TX	NANR
Cities Service, Texas City, TX	NANR
Dow Chemical, Freeport, TX	NANR
Dow Chemical, Plaquemine, LA	NANR
Amoco Chemicals, Chocolate Bayou, TX	NANR
E. I. DuPont de Nemours, Orange, TX	NANR
E. I. DuPont de Nemours, Victoria, TS	NANR
Gulf Oil Chemicals, Orange, TX	NANR
Hercules, Lake Charles, LA	NANR
Monsanto, Texas City, TX	same as Cities Service
Union Carbide, Port Lavaca	NANR (Seadrift)

C. Polystyrene Resins

*A & E Plastik Pak, City of Industry, CA
 American Hoechst, Chesapeake, VA
 *American Hoechst, Leominster, MA
 *American Petrofina/Cosden, Calumet City, IL
 *American Petrofina/Cosden, Windsor, NJ
 *ARCO Polymers, Beaver Valley, PA
 *BASF Wyandotte, Jamesburg, NJ
 *MOBIL/Rexene, Holyoke, MA
 MOBIL/Rexene, Joliet, IL
 *MOBIL/Rexene, Santa Ana, CA
 *Dow Chemical, Allyn's Point, CT
 Dow Chemical, Midland, MI
 *Gordon Chemical, Oxford MA
 *Gordon Chemical, Worcester, MA

Gordon Chemical, Owensboro, KY
 Guntsman, Troy, OH
 *Monsanto, Addyston, OH
 Monsanto, Decatur, AL
 *Monsanto, Long Beach, CA
 *Monsanto, Springfield, MA
 Polysar Plastics, Copley, OH
 *Polysar Plastics, Leominstec, MA
 *Richardson Co., Channelview, TX
 *Richardson Co., West Haven, CT
 Shell Chemical, Belpre, OH
 Amoco Chemicals, Joliet, IL
 *Amoco Chemicals, Torrance, CA
 *Amoco Chemicals, Willow Springs, IL

Note: Based upon information currently available, polystyrene plants not included on the above list are either not located in a non-attainment area or manufacture polystyrene co-polymers by reaction with styrene monomer. Plants included above have not yet been contacted to verify whether they manufacture polystyrene copolymers qualifying for exemption from the CTG.

The following comments are provided concerning the plants in your June 18 listing.

Allied Resins, Conneaut, OH	does not exist
American Research Prod. Co., S. Euclid, OH	cannot confirm existence
Amoco Chemicals, Joliet, IL	NANR
Amoco Chemicals, Medina, OH	dismantled in 1977
Amoco Chemicals, Willow Springs, IL	NAR
Arco Polymers, Monaca, PA	Beaver Valley, PA, NAR
Arkansas Plastics, Sulfur Springs, PA	cannot confirm existence
BASF Wyandotte, S. Brunswick, NJ	cannot confirm existence
Cosmar, Carlville, LA	cannot confirm existence
Crest Container, Saginaw, TX	cannot confirm existence
Charles Tanner, Greenville, SC	cannot confirm existence
Dart, Bayport, TX	cannot confirm existence
Dow Chemicals, Allyn's Pt., CT	} same plant
Dow Chemicals, Gales Ferry, CT	
Dow Chemicals, W. Haven, CT	does not exist
Dow Chemicals, Midland, MI	NANR
Dow Chemicals, Ironton, OH	} polystyrene co-polymers
Dow Chemicals, Joliet, IL	
Dow Chemicals, Peverly, MO	
Dow Chemicals, Torrance, CA	
Expandable Tech., Fort Worth, TX	
Firestone, Akron, OH	cannot confirm existence
Glidden/SCM, Huron, OH	cannot confirm existence
Glidden/SCM, Reading, PA	cannot confirm existence
Glidden/San Francisco, CA	cannot confirm existence
Gulf Oil Chemicals, Marietta, OH	NANR
Hercules Polymers, Clairton, PA	cannot confirm existence
Huntsman-Goodson, Troy, OH	NANR
Interpolymer, Canton, MA	cannot confirm existence
Ionic Chem., Birmingham, NJ	cannot confirm existence
Jersey State Chem., Haledon, NJ	cannot confirm existence

MOBIL Chemicals, Joliet, IL	NANR
MOBIL Chemicals, Santa Ana, CA	NAR
Monsanto, Addyston, Oh	NAR
Monsanto, Decatur, AL	NANR
Monsanto, Indian Orchard, MA	cannot confirm existence
Monsanto, Texas City, TX	does not exist
Morton Chem., Ringwood, IL	cannot confirm existence
Neville, Pittsburgh, PA	cannot confirm existence
Neville, Sante Fe Springs, CA	cannot confirm existence
Polysar, Akron, OH	same as Copley, OH, plant
Polysar, Chattanooga, TN	NANR
Proctor Chemical, Salisbury, NC	cannot confirm existence
Purex, Carson, CA	cannot confirm existence
S.C. Johnson, Racine, WI	cannot confirm existence
Shell Chemical, Belpre, OH	NANR
SPCC, Corpus Christi, TX	cannot confirm existence
Sterling Plastics, Orange, CA	cannot confirm existence
Sterling Plastics, Windsor, NJ	cannot confirm existence
3M Co., St. Paul, MN	cannot confirm existence
Union Carbide, Bound Brook, NJ	cannot confirm existence
Union Carbide, Marietta, OH	now Gulf Oil Chem., NANR
USS Chemicals, Haverhill, OH	} same plant
USS Chemicals, Haverhill, OH	
Zinchem, Somerset, NJ	cannot confirm existence

Note: These plants have not been contacted to determine whether they manufacture polystyrene co-polymers and are exempt from the CTG.

II. Polystyrene Vacuum System Emissions Factors

Amoco is currently installing vacuum pumps on the devolatilizer condenser overhead systems at its Joliet plant. A similar system to be installed on the styrene recovery system condenser overhead is under study. The emissions factors for both systems, calculated from air-styrene equilibrium data are listed below.

	<u>16 VOC/hr.</u>	<u>16 VOC/1000 lb resin</u>
devolatilizer vacuum system	0.47	0.046
styrene recovery vacuum system	0.51	0.017

III. Staged Flares

Information to be provided at a later date.

IV. In addition to the hydrocarbon present, this stream contains approximately 26,000 lb/hr. nitrogen and traces of water vapor. The emissions to the flare from this stream are calculated at approximately 0.6 #VOC/1000# product.