

06/26/96

DRAFT

TOXICOLOGICAL PROFILE FOR
VINYL CHLORIDE

Prepared by:

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Prepared for:

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

HAS —

- Per your 06/18/96
memo & request,
attached are
pertinent info corrections
from Gerson perspective.
- Since it appeared
that no VCM info
site max range
amounts were
exhibited, I did
not fill in data
for the table.
Certainly can
shir up that
info if needed.
Regards —
Ed Butler

August 1995

4. PRODUCTION, IMPORT, USE, AND DISPOSAL

4.1 PRODUCTION

Production of vinyl chloride monomer in the United States was approximately 13.75 billion pounds in 1993 (C&EN 1994; USITC 1994), an increase of nearly 22%. This exceeds the latest available U.S. estimated total production capacity figures (beginning of 1993) of 12.79 billion pounds at the beginning of 1993 (SRI 1993) and represents a substantial recent increase in production and capacity, even if vinyl chloride production is at full capacity. Previously, vinyl chloride production had grown only 1–5% per year over the last 5 years (C&EN 1994). Over the last 10 years, vinyl chloride production has grown at an average rate of about 7%, not including the large increase in 1993, although production volumes were fairly volatile (C&EN 1994).

Vinyl chloride is currently produced in the United States by 10 companies at 12 facilities, which are as follows (SRI 1994): Westlake Monomers Corporation in Calvert City, Kentucky; Borden Chemicals and Plastics in Geismar, Louisiana; Dow Chemical in Oyster Creek, Texas, and in Plaquemine, Louisiana; Georgia Gulf Corporation in Plaquemine, Louisiana; PPG Industries in Lake Charles, Louisiana; Vista Chemical Company in Lake Charles, Louisiana; ~~B.F. Goodrich Company~~ in LaPorte, Texas; Formosa Plastics Corporation in Baton Rouge, Louisiana, and in Point Comfort, Texas; Occidental Chemical Corporation in Deer Park, Texas; and Oxymer in Ingleside, Texas. Table 4-1 summarizes the facilities in the United States that manufacture or process vinyl chloride. This information was obtained from the 1992 Toxic Chemical Release Inventory (TRI92), and it summarizes the reported release data for 1992 (TRI92 1994). Table 4-1 also lists the maximum amounts of vinyl chloride that are present at these sites and the end uses of the vinyl chloride.

Ownership
changed
@ 04/93
via IPO

Vinyl chloride was first produced commercially in the 1930s by reacting hydrogen chloride with acetylene. Currently, vinyl chloride is produced commercially by the chlorination of ethylene through one of two processes, direct chlorination or oxychlorination. Direct chlorination reacts ethylene with chlorine to produce 1,2-dichloroethane. Similarly, oxychlorination produces 1,2-dichloroethane, but this is accomplished by reacting ethylene with dry hydrogen chloride and oxygen. After both processes, the 1,2-dichloroethane is subjected to high pressures (2.5–3.0 megapascals) and temperatures

Table 4-1. Facilities That Manufacture or Process Vinyl Chloride

Facility	Location ^a	Range of maximum amounts on site in pounds	Activities and uses
KEYSOR-CENTURY CORP.	SAUGUS, CA	1,000,000-9,999,999	As a reactant
UNION CARBIDE CORP.	TORRANCE, CA	10,000-99,999	As a reactant
FORMOSA PLASTICS CORP.	DELAWARE CITY, DE	1,000,000-9,999,999	As a reactant
GEORGIA GULF CORP.	DELAWARE CITY, DE	1,000,000-9,999,999	As a reactant
WESTLAKE PVC CORP.	PACE, FL	1,000,000-9,999,999	As a reactant
UNION CARBIDE CHEMICALS	TUCKER, GA	100,000-999,999	As a reactant
① BF GOODRICH CO. GEON CO.	HENRY, IL	1,000,000-9,999,999	As a reactant; As a product component
BORDEN CHEMICALS & PLASTICS	ILLIOPOLIS, IL	No Data	As a reactant
② BF GOODRICH CO. GEON CO.	LOUISVILLE, KY	1,000,000-9,999,999	As a reactant
AIR PRODS. & CHEMICALS INC.	CALVERT CITY, KY	10,000-99,999	As a reactant
WESTLAKE PVC CORP.	CALVERT CITY, KY	1,000,000-9,999,999	As a reactant
WESTLAKE MONOMERS CORP.	CALVERT CITY, KY	1,000,000-9,999,999	Produce; For sale/distribution
VULCAN MATERIALS CO.	GEISMAR, LA	100,000-999,999	Produce; For on-site use/processing; As a by-product; As a reactant
BORDEN CHEMICALS & PLASTICS	GEISMAR, LA	No Data	Produce; For on-site use/processing; For sale/distribution; As a reactant
PPG IND. INC.	LAKE CHARLES, LA	No Data	Produce; For sale/distribution; As a by-product; As an impurity; As a reactant
CERTAINTED CORP.	SULPHUR, LA	1,000,000-9,999,999	As a reactant
VISTA CHEMICAL CO.	WESTLAKE, LA	No Data	Produce; For sale/distribution
FORMOSA PLASTICS CORP.	BATON ROUGE, LA	1,000,000-9,999,999	Produce; For on-site use/processing; For sale/distribution; As a by-product; As a reactant
RHONE POULENC BASIC CHEMICALS	BATON ROUGE, LA	10,000-99,999	Ancillary uses
DOW CHEMICAL CO.	PLAQUEMINE, LA	No Data	Produce; For sale/distribution; As a reactant; As a manufacturing aid; Ancillary uses

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BFC

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① Ownership changed at 04/93 via TFC (unavailable (filing)).

② Note: BFGoodrich still "operates" plant on site, using large VCM.

Table 4-1. Facilities That Manufacture or Process Vinyl Chloride (continued)

Facility	Location*	Range of maximum amounts on site in pounds	Activities and uses
BF GOODRICH CO. → GEON CO. GEORGIA GULF CORP.	PLAQUEMINE, LA PLAQUEMINE, LA	100,000-999,999 No Data	As a reactant Produce; For on-site use/processing; For sale/distribution; As a reactant
UNION CARBIDE CORP.	HAHNVILLE, LA	No Data	As a by-product
MARINE SHALE PROCESSORS INC.	AMELIA, LA	1,000-9,999	As a reactant
OCCIDENTAL CHEMICAL CORP.	ADDIS, LA	100,000-999,999	As a reactant
DOW CHEMICAL USA	MIDLAND, MI	100,000-999,999	As a reactant; Ancillary uses
MILES INC.	KANSAS CITY, MO	100,000-999,999	As a reactant
VISTA CHEMICAL CO.	ABERDEEN, MS	No Data	As a reactant
OCCIDENTAL CHEMICAL CORP.	BURLINGTON, NJ	1,000,000-9,999,999	As a reactant
BF GOODRICH CO. → GEON CO.	PEDRICKTOWN, NJ	1,000,000-9,999,999	As a reactant
GOODYEAR TIRE & RUBBER CO.	NIAGARA FALLS, NY	100,000-999,999	As a reactant
VYGEN CORP.	ASHTABULA, OH	100,000-999,999	As a reactant
BF GOODRICH AVON LAKE → GEON CO.	AVON LAKE, OH	1,000,000-9,999,999	As a reactant (in pilot plant operation)
VISTA CHEMICAL CO.	OKLAHOMA CITY, OK	1,000,000-9,999,999	As a reactant
OCCIDENTAL CHEMICAL CORP.	POTTSTOWN, PA	1,000,000-9,999,999	As a reactant
GREENWOOD PLATING	GREENWOOD, SC	1,000,000-9,999,999	As a product component
DOW CHEMICAL CO.	FREEPORT, TX	No Data	Produce; As a by-product; As an impurity; As a reactant; As a chemical processing aid
SHINTECH INC.	FREEPORT, TX	No Data	Import; For on-site use/processing; As a reactant
FORMOSA PLASTICS CORP.	POINT COMFORT, TX	No Data	Produce; For on-site use/processing; As a by-product; As a reactant
UNION CARBIDE CHEMICALS & UNION CARBIDE CHEMICALS	GARLAND, TX	100,000-999,999	As a reactant
OCCIDENTAL CHEMICAL CORP.	TEXAS CITY, TX	1,000,000-9,999,999	As a reactant
RHONE-POULENC BASIC CHEMICALS	LA PORTE, TX	1,000,000-9,999,999	Ancillary uses
	HOUSTON, TX	10,000-99,999	Ancillary uses

3. Ownership changed @ 04/93 via IPO, however, vinyl chloride activity was not been discontinued @ 06/92.

4) Currents changed to 09/93 from 11/91.

(c) " " " " : annual operations were limited to pilot plant / developmental quantities, since producing pilot scale operations ceased @ 6/93. Range: 100,000 - 989,000 lbs. material & other resources used in operations & pilot plant usage.

Table 4-1. Facilities That Manufacture or Process Vinyl Chloride (continued)

Facility	Location*	Range of maximum amounts on site in pounds	Activities and uses
OCCIDENTAL CHEMICAL CORP.	PASADENA, TX	No Data	As a reactant
BF GOODRICH CO <i>GEON CO.</i>	DEER PARK, TX	1,000,000-9,999,999	As a reactant
OCCIDENTAL CHEMICAL CORP.	DEER PARK, TX	No Data	Produce; For sale/distribution
<i>GEON CO.</i>	LA PORTE, TX	No Data	Produce; For sale/distribution
OCCIDENTAL CHEMICAL CORP.	GREGORY, TX	No Data	Produce; For sale/distribution
BONDCOTE CORP.	PULASKI, VA	100,000-999,999	As a formulation component

Source: TRI92 1994

* Post office state abbreviation used

(C) Ownership changed on 04/93 via ITC.

(D) Ownership cannot be exhibited, since this site was also part of 04/93 ITC.

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4. PRODUCTION, IMPORT, USE, AND DISPOSAL