SNAP CODE: **040504**

SOURCE ACTIVITY TITLE: **PROCESSES IN ORGANIC CHEMICAL INDUSTRIES (BULK PRODUCTION)**
Vinylchloride

NOSE CODE: **105.09.58**

NFR CODE: **2 B 5**

1 ACTIVITIES INCLUDED

Most vinylchloride is produced in the balanced process (see chapter B455). An alternative route is the addition of HCl to acetylene.

2 CONTRIBUTION TO TOTAL EMISSIONS

The NMVOC emission of vinylchloride plants contributes on average 0.02% to the total NMVOC emission in a country.

Table 2.1: Contribution to total emissions of the CORINAIR90 inventory (*28 countries*)

Source-activity	SNAP-code	Contribution to total emissions [%]							
		SO_2	NO_x	NMVOC	CH_4	CO	CO_2	N_2O	NH_3
Vinylchloride	040504	-	-	0	-	0	-	-	-

0 = emissions are reported, but the exact value is below the rounding limit (0.1 per cent)
- = no emissions are reported

3 GENERAL

3.1 Description

HCl and an acetylene containing mixture are fed to a reactor containing Hg_2Cl_2 on carbon as catalyst. Reactor operation conditions are: T: 150 - 180°C; p: 500 - 1500 kPa.

Mixtures of acetylene and ethylene can be fed to the reactor, since ethylene does not react under the operation conditions used.

3.2 Definitions

3.3 Techniques

See section 3.1 and chapter B455.

3.4 Emissions

No data are available for this process.

3.5 Controls

The losses due to leakage can be limited by use of certain types of seals and application of double seals near pumps.

4 SIMPLER METHODOLOGY

Use of an overall emission factor for the vinylchloride production emissions. The amount of emitted VOC is then directly related to the vinylchloride production.

5 DETAILED METHODOLOGY

A more detailed methodology is used by the United States EPA.

Instead of one emission factor for the whole plant, emission factors for each piece of equipment, like valves, flanges, etc., can be used. Each type of equipment has its own emission factor. The total emission factor for the plant can be calculated by multiplying each equipment emission factor by the number of pieces of that type of equipment. So, for this method it is necessary to know how many pieces of each type of equipment are present in the plant.

6 RELEVANT ACTIVITY STATISTICS

Table 6.1.: Vinylchloride production in some countries and regions for 1990 :

Country or Region	kton/y	source
U.S.A.	4826	Chem&EngNews 29/6/92

7 POINT SOURCE CRITERIA

Vinychloride production plants can be considered as point sources if plant specific data are available.

8 EMISSION FACTORS, QUALITY CODES AND REFERENCES

No data available.

9 SPECIES PROFILES

No data are available for this process.

10 UNCERTAINTY ESTIMATES

11 WEAKEST ASPECTS/PRIORITY AREAS FOR IMPROVEMENT IN CURRENT METHODOLOGY

12 SPATIAL DISAGGREGATION CRITERIA FOR AREA SOURCES

National emission estimates can be disaggregated on the basis of production, population or employment statistics.

13 TEMPORAL DISAGGREGATION CRITERIA

The plants are operated in continuous flow, thus no variation in emissions diurnally or seasonally is expected to occur.

14 ADDITIONAL COMMENTS

15 SUPPLEMENTARY DOCUMENTS

16 VERIFICATION PROCEDURES

Verification of the emissions can be done by comparing with measurements in the individual plant or by setting up a mass balance over the entire plant.

17 REFERENCES

18 BIBLIOGRAPHY

- Kirk-Othmer, Encyclopedia of chemical technology, Volume 23, third edition (1983).
- Winnacker-Küchler, Chemische Technologie, Organische Technologie II, Band 6 4. Auflage (1982) (in German).

19 RELEASE VERSION, DATE AND SOURCE

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20 POINT OF ENQUIRY

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