



B.F.GOODRICH COMPANY

CONFIDENTIAL RESTRICTED

20207001

BFG02368

DES

1. Start/Blacked out
2. Vittone, dressed in appropriate attire, standing in front of a chemical plant.
3. Vittone going through plant gate.
4. Vittone walking toward poly building
5. Vittone, entering poly building with warning sign visible
6. Vittone inside building with respirator in hand
7. Field of IPD Logos
8. One IPD Logo
9. Working with Vinyl Chloride produced for B.F. Goodrich Chemical Company by IPD.
10. Photo showing 1939 Chemical plant scene.

Hello, I'm Antone Vittone, President, B.F. Goodrich Chemical Company. You are about to view a presentation entitled "Working With Vinyl Chloride."

Vinyl Chloride is an important raw material for many products in our society, but, Vinyl Chloride is also a chemical that presents specific hazards to our health.

You will learn of these hazards, and the necessary steps you must take to protect yourself.

I urge you to pay close attention to what you will see and hear.

(Music comes on at this point, and will remain as a background throughout the remainder of the session. Plant sounds will highlight appropriate segments.)

(PAUSE)

In the late 1930's, B.F. Goodrich began pioneering the development of a synthetic organic chemical known as Vinyl Chloride.

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Photo-wrapping films, electrical insulation, gaskets and pipe.

Vinyl Chloride, or VC as it is often called, is the parent chemical for many products such as wrapping films, electrical insulation, flexible gaskets, and pipe.

12. Pressure

↓
Gas → Liquid
Imposed over plant scene

Vinyl Chloride is a gas at normal temperatures and pressures. Under pressure, it becomes a liquid.

13. Pressure

↓
Gas → Liquid
↓
PVC
Imposed over plant scene

Most Vinyl Chloride is used in the production of Polyvinyl Chloride, or PVC.

13. (A) Photo BFG Chemical plant; an aerial

The manufacturing process for Vinyl Chloride and Polyvinyl Chloride involves complicated chemical reactions which take place inside closed vessels called "reactors." *or "poly"*

13. (B) Photo Close shot to tanks, pipes, and towers

The process takes place in a series of tanks, pipes, and towers.

13. (C) Four frame photo of probable exposure points

1. Tank car connections
2. Valves
3. Filters
4. Reactors

In B.F. Goodrich chemical plants, ^{some} the points of exposure to Vinyl Chloride ^{include} are: tank car connections, valves, filters, and open reactors.

(PAUSE)

14. Health hazards imposed over plant picture

We are confronted with four health hazards that are associated with the manufacture and use of Vinyl Chloride:

15. Art--

1. Acroosteolysis
 2. Angiosarcoma
 3. Non-cancerous liver disease
 4. Asphyxiation
- Imposed over plant aerial

Acroosteolysis of the hands, Angiosarcoma of the liver, non-cancerous disease of the liver, and asphyxiation.

20207003

Art--
Acroosteolysis-"Hand Problem"
Imposed over picture of a reactor

17. Photo Close up of person about
to enter a reactor with bare hands

18. Art--
Symptoms:
1. Numbness and cold feeling
2. Deformity of hands or fingers
Imposed on picture of a reactor

19. Photo of someone in protective
clothing--gloves, high-pressure
water cleaning--reduced exposure

20. January 1974 NIOSH NOTIFIED
imposed on split picture of BFG
and NIOSH logos.

21. Art--
Angiosarcoma--a cancerous liver tumor

22. Angiosarcoma--a cancerous liver tumor
Latency period imposed

In the mid-1960's, Acroosteolysis, known
as the "Hand Problem," came to the attention of
the Vinyl Chloride industry.

It affected some people whose hands came in
direct contact with ~~Polyvinyl Chloride~~ residues
they removed from reactors where the polymerization
of Vinyl Chloride took place.

The symptoms are a numbness and cold feeling
in the fingers. In more serious cases, some
deformity of the hand or fingers results.

By wearing protective clothing, especially
gloves, by using ^{an automatic} high pressure water ^{nozzle} to ~~assist~~
^{clean} ~~in cleaning~~ reactors, and by reducing exposure,
we have largely eliminated the "Hand Problem."

(PAUSE)

In January 1974, The B.F. Goodrich Company
notified the National Institute for Occupational
Safety and Health, NIOSH, ^{that} The deaths of three
employees between 1971 and 1974 due to Angio-
sarcoma of the liver may have been occupationally
related.

Angiosarcoma is a cancerous tumor of the
liver. Testing in animals showed that it could
be caused by exposure to Vinyl Chloride gas in
the atmosphere.

Damage incurred in humans is not readily
apparent due to a latency period. It may take
years to notice.

20207004

- Angiosarcoma--a cancerous liver tumor
Imposed Latency period Symptoms
few and hard to detect
- 24. Known Symptoms:
 - 1. Feeling under the weather
 - 2. Possible intestinal bleedingImposed over Angiosarcoma
- 25. Art--Research
BFG and NIOSH non-cancerous liver
disease Imposed over picture of
chemical plant Imposed over split
logo picture
- 26. Art--
Non-cancerous liver diseases caused
or aggravated by Vinyl Chloride
Imposed on plant picture
- Art
Asphyxiation--caused by breathing
Vinyl Chloride gas in excess of
6,000 parts per million
Imposed over picture of Vinyl Chloride
operations.
- 28. Art--
Symptoms:
 - 1. Lightheadedness
 - 2. Loss of coordination
 - 3. Drunk-like actions
 - 4. Unconsciousness
- 29. Photo and type
Regulated Area--Vinyl Chloride gas
in excess of one part per million
parts of air Imposed over picture
of Vinyl Chloride operations.

Symptoms of Angiosarcoma are few and hard to detect. They may be confused with other diseases.

Two known symptoms are: a frequent feeling of "being under the weather," and intestinal bleeding.

BFG's joint research with NIOSH has made us aware of non-cancerous diseases of the liver that can be

caused or aggravated by breathing Vinyl Chloride gas. The techniques discussed in this presentation to prevent Angiosarcoma are being used to prevent these non-cancerous liver diseases.

Asphyxiation, or death from lack of oxygen can be caused by breathing Vinyl Chloride gas at concentrations in excess of 6,000 parts of Vinyl Chloride gas per one million parts of air.

Symptoms include:

- 1. Lightheadedness
- 2. Loss of coordination
- 3. Drunk-like actions
- 4. Unconsciousness

The same steps being taken to prevent Angiosarcoma and non-cancerous liver disease will be effective in guarding against asphyxiation
(PAUSE)

Some locations in our plants are designated as regulated areas. An amount of Vinyl Chloride exceeding one part per million parts of air can be measured there. The entrance to these areas

In these areas, conditions leading to exposure to concentrations greater than one part per million parts of air may be expected.

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30. Photo Warning Sign
Cancer Suspect Agent in This Area
Protective Equipment Required
Authorized Personnel Only

is marked:

Cancer Suspect Agent in This Area

Protective Equipment Required

Authorized Personnel Only

31. Plant Management

↓
Authorization

↓
Regulated Area

Only individuals specifically authorized

to enter a regulated area are allowed in. This authorization is issued by your plant management.

If you work at our Calvert City plant, a different kind of sign will designate a regulated area.

This will be reviewed by a plant representative.

omit

32. Photo ^{resin} PVC waste with proper warning sign

Containers of Polyvinyl Chloride are labeled:

Polyvinyl Chloride Contains Vinyl Chloride

Vinyl Chloride is a cancer-suspect Agent

- Photo ^{waste}
33. Photo PVC/Container with proper sign
(Dumpester)

Containers of Polyvinyl Chloride resin

waste, or other waste that may be contaminated with Vinyl Chloride are labeled:

Contaminated With Vinyl Chloride Cancer suspect Agent

- (thcon)
34. Photo VC Container with proper warning sign

Containers of Vinyl Chloride are labeled:

Vinyl Chloride Extremely flammable gas

under pressure Cancer suspect Agent

35. Photo Fire or explosion
Danger always present imposed on picture of fire

As in ^{most} chemical plants, the possibility of an explosion or fire is always present. Extensive safeguards have been taken to prevent this from happening.

There are emergency procedures which must

be followed in the event of an ~~explosion~~, fire, ^{gas release,} or any kind of disaster.

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A plant representative will cover specific emergency procedures for your plant.

(PAUSE)

The air you breathe will be monitored for Vinyl Chloride in two ways:

1. Through Atmospheric monitoring, and
2. Personal monitoring

Atmospheric monitors are devices which have six to twelve sampling points connected to a central hydrocarbon analyzer. These sampling points are constantly testing the air for Vinyl Chloride gas.

Analyzers are located throughout the plant's Vinyl Chloride operations.

A program of personal monitoring is used to measure the amounts of Vinyl Chloride you breathe in your work area.

If you work where prior ^{personal}atmospheric monitoring has shown the amount of Vinyl Chloride in the air to be less than one half part per million parts of air, no ^{routine}personal monitoring will be required since the Vinyl Chloride exposure is minimal.

If ^{your personal monitoring results indicate low exposure}~~you work where levels~~ between one half and one part of Vinyl Chloride per million of air ~~has been monitored~~, you will be personally monitored every three months. ~~This kind of~~

36. "Atmospheric monitoring" imposed over internal picture of chemical plant
37. Photo and type
Photos of an atmospheric monitor and personal monitor with proper type identification
38. Photo Atmospheric Monitor
Especially show sampling points (by arrows)
39. Photo of an installed Atmospheric Analyzer
40. Photo and type
Photo of personal monitor with type-measures the air you breathe
41. Type
Less than one half part per million--no personal monitoring Imposed over picture of area monitor
42. Type and Photo
One half to one part million--personal monitoring every three months Imposed over picture of Vinyl Chloride operations

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omit
 Art and Photo
 Action Area: One half to one part
 Vinyl Chloride per million parts of
 air Imposed over picture of plant

44. Type
 Over one part per million--personal
 monitoring every month Imposed over
 photo of Vinyl Chloride operation
 and/or building
45. Photo
 Employee with Micronair II on
46. Photo
 Close up of employee in 49, showing
 pump on belt
47. Photo
 Close up of employee in 49, showing
 tube and charcoal container
48. Type and Photo *three*
 Photo showing ~~two~~ respirator types,
 with ~~type two~~ *three* respirator types half-
 face, ~~full face~~
49. Type
 1975 Only No respirator required
 under 25 PPM Imposed over picture
 of a respirator
50. Type
 You may choose to use a respirator
 under 25 PPM Imposed over picture
 of a respirator
51. Photo and type
 Type 1 to 10 PPM
 Photo of employee with canister unit

7
 location is called an Action Area

personal monitoring results
 When atmospheric monitors show the presence
exposure to of an amount of Vinyl Chloride, in excess of one
concentrations part per million parts of air, you will be ~~per-~~
~~sonally~~ monitored *on a* monthly schedule.

A Bendix Micronair II System will be issued
 for personal monitoring.

A battery powered pump is hooked onto your
 belt or placed in your pocket.

The pump draws air through the plastic
 tubing to a charcoal container. After four hours
the test period of use, the charcoal will be analyzed to determine
 the amount of Vinyl Chloride in the air that has
 passed through it.

For personal protection, *three* two types of respira-
 tors are provided, a half-face mask *with canister* and a full-
 face mask. *a half-face mask requires a canister and a*
self contained air pack

During 1975, the law *does not* will require a respirator
 only if the level of Vinyl Chloride gas in the
 air is *less* ~~more~~ than twenty-five parts per million
 parts of air.

However, if you choose to wear one at levels
 under twenty-five parts per million of air, a
 respirator will be provided.

If you choose to wear a respirator below
 the twenty-five parts per million level, ~~is the~~
 canister *type* would provide sufficient protection only

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between one and ten parts of Vinyl Chloride per million parts of air.

52. Photo
Photo of both half-face piece units

Two styles of the half-face respirator can be supplied, if you choose to wear a respirator at levels under twenty-five parts per million of air. Plant safety personnel will help determine the best-fitting mask for your face.

53. Photo
Employee being assisted in putting on a half-face piece unit

The canister you use at levels between one and ten parts of Vinyl Chloride per million of air works on a demand type of air flow. A demand flow system requires you to breathe in, or demand air, for it to work.

54. Split Photo
Employee with half-face piece unit attached to an air line and an employee with an air pak.

A positive air flow system constantly forces air into your respirator. Air ^{line respirators} ~~supply lines~~ and air paks are positive air flow systems.

55. Photo and Art
Close-up of employee with half-face piece unit Arrows pointing to edges of respirator

You must have a safe, air-tight seal around your face in order for any respirator to protect you.

56. Art--
Respirator Seal Test
1. Put the face mask on
2. Pinch the air hose shut
3. Inhale deeply

Here is a quick test to check the quality of your seal:

57. Someone putting on face mask
58. Someone pinching air hose
59. Respirator tight against someone's face

Put the face mask on
Pinch the air hose shut
Inhale deeply

If the face mask pulls tightly against your face, you have a good seal. If, after readjusting it, you can still pull air in, notify your supervisor immediately.

More specific information on respiratory equipment will be provided by your plant representative

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Photo
Employee in protective clothing about
to enter a reactor

In addition to a respirator, you may be
required to wear protective clothing at certain

times. Protective clothing is required by law
you might expect skin contact with
when you enter a reactor to clean it.
vinyl chloride. Entry into a vessel to remove a
(PAUSE) *canister or solid charge would be such*
an occasion

61. Photo
Same employee as 51 but now plugging
into an air line with yellow light
visible

canister

At ten parts per million, a yellow flashing
light will come on. If you've chosen to wear a
respirator when the VC level is below twenty-five
parts per million, disconnect the canister and
plug your air hose into a ~~continuous flow~~ air line.

62. Photo and type
Photo of red light
Type-everyone must put on a *air mask* respirator

A red flashing light will indicate that a
level of twenty-five parts of Vinyl Chloride per
million of air is present.

63. Photo
Employee with mask on plugging into
an air line--red light in background

By law, everyone then puts on a half-face res-
pirator and plugs it into an air supply line.

64. Type and Photo
Type 100 PPM evacuate or use an
air-pak

An audible alarm will indicate that a level
of one hundred parts of Vinyl Chloride per million
of air has been reached. At this point, all
employees must evacuate the location, except those
specifically designated to wear a ~~full-face~~, self-
contained air pak unit.

(PAUSE)

65. Photo Repeat 61

Remember, if you are wearing a respirator
attached to a canister and the yellow alarm comes
on, you should disconnect the canister and connect
the hose to an air line.

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Photo Repeat 63

When the red alarm light comes on each employee must put on a respirator and connect to an air line.

67. Photo Repeat 64

When you hear the audible alarm you must leave the area unless you are designated to remain; then, you must wear a ~~full-face~~ air-pak.

(PAUSE)

68. Type and Photo
Words--Medical surveillance over
Photo--of employee receiving blood
pressure check or X-ray

Our medical surveillance program ~~backs up~~
~~the personal monitoring program by providing~~ physical examinations for all employees exposed to Vinyl Chloride in excess of one-half parts per million parts of air.

69. Type and Photo
Same photo as 68, with type--
less than 10 years--physical yearly

If you have worked in a Vinyl Chloride or Polyvinyl Chloride operation less than ten years, you will be examined not less than once a year by a plant physician.

70. Type and Photo
Same photo as 68, with type--
Over 10 years--two physicals

If you have worked in a Vinyl Chloride or Polyvinyl Chloride operation for more than 10 years, you will be examined every six months.

71. Type
1. General Physical
2. Liver and Kidney test
3. Lung function test
4. Chest X-ray
5. Medical history plus a
yearly liver scan for employees
receiving two physicals yearly

The physical examinations consist of:

1. A general systemic check-up
2. A series of biochemical tests of the liver and kidney functions, through blood and urine samples
3. A lung function test
4. A chest X-ray
5. A past medical history, and
6. A yearly liver scan for employees who receive two physicals yearly

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TENTATIVE DRAFT 1-15-75

Type

Detects medical problems resulting from Vinyl Chloride exposure Imposed over picture of Medical Center

The purpose is to detect ~~any~~ medical problems that could result from exposure to Vinyl Chloride.

73. Photo of statement

The physician will issue a written statement concerning your continued ability to work in an area of Vinyl Chloride exposure.

74. If physician states your health would be impaired, you and plant management will be notified Imposed over picture of main office

If the physician states that your health could be harmed by continued work in a Vinyl Chloride-related operation, you and your plant manager will be notified.

75. Physical results kept on file 30 years Imposed over picture of plant Medical facility

The results of your physical examinations will be kept on file for thirty years. The data will always be available to you and your personal physician.

.....(PAUSE)

76. Vittone standing inside poly building

Over the years, we at B.F. Goodrich have tried to maintain a safe working environment by controlling potential dangers during the manufacturing process, by establishing safe work practices through training and by using modern equipment.

77. Vittone leaving poly building

The procedures we have reviewed are ^{important} ~~vital~~ to your health and well being.

78. Close up shot of Vittone

I personally pledge that we will continue to provide you with:

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TENTATIVE DRAFT 1-15-75

79. Close up shot of Vittone

80. Close up shot of Vittone

81. (Con't)

82. A/V Production and Logo

83. Black out

current information
health 1. ~~Complete up-to-date~~ concerning safety and hazards;

2. The best safety equipment available; and

3. Work standards that adhere ~~completely~~ to *both* the letter and spirit of the law.

Thank you

Music comes up full at end.

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