

EDITORIAL NOTE: There are 31 job-associated modules. The modules for chemical industry worker, engineer, and painter are given as examples. The other job modules are available from P. Stewart.

CHEMICAL INDUSTRY (CHI) JOB MODULE

Lead-in. I am going to ask about your work as (a/an) (JOB TITLE) at (EMPLOYER) [from (YEAR STARTED) to (YEAR STOPPED)/in (YEAR)].

PRODUCT	Made. Did (EMPLOYER) make (PRODUCT)?	IF YES TO Made , ASK ProductSpecifics (IF*).
		ProductSpecifics.
Paint. Paints	YES 1 NO 2	
Pesticides. Pesticides	YES 1 NO 2	
Drugs. Drugs or pharmaceuticals	YES 1 NO 2	
Plastics. Plastics or resins	YES 1 NO 2	
OtherChemicals. Other chemicals (SPECIFY)	YES 1 <hr/> ChemicalSpecify NO 2	

BOX CHI-1

IF **Made** ALL = NO, DK, OR REFUSED (RF), that is none of the answers is one, END MODULE.

IF >1 "YES" IN **Made**, ASK **MakeProduct**. ASK **MakeProduct** SEPARATELY ABOUT EACH YES (1) IN **Made**.

IF EXACTLY ONE "YES" IN **Made**, GO TO **InOrOutdoors**.

MakeProduct. Were you involved in making (PRODUCT FROM **Made**)?

YES 1
 NO 2

BOX CHI-2

IF **MakeProduct** ALL = NO, DK, OR RF (≠ 1), END MODULE.

InOrOutdoors. Was the part of the plant where you worked primarily indoors, primarily outdoors, or did you work the same amount of time both indoors and outdoors?

INDOORS 1
 OUTDOORS 2
 BOTH 3

Job.

ASK JOB MINI-MODULE.

Now I'm going to ask you about specific activities you may have done while working at this job.

ACTIVITY	<p>ASK DidTask FOR EACH ACTIVITY (Ventilated Room THROUGH LoadOrUnload) BEFORE GOING TO TaskSpecifics.</p> <p>DidTask. Did you ever (ACTIVITY)?</p>	<p>IF YES TO DidTask, ASK TaskSpecifics IF (*).</p> <p>TaskSpecifics. You said that, at this job, you had to (ACTIVITY).</p>
<p>ONLY ASK VentilatedRoom THROUGH NonControlRoom IF TypeOfWork = 03 (PRODUCTION).</p> <p>VentilatedRoom. Work in a room where the air was removed to outside the control room by a fan or exhaust system</p>	<p>YES..... 1 NO 2</p>	<p>* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").</p>
<p>UnventilatedRoom Work in a control room where the inside air was not removed from the control room</p>	<p>YES..... 1 NO 2</p>	<p>* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").</p>
<p>NonControl Room. Work in an area where the (PRODUCTS FOR WHICH MakeProduct = YES OR SINGLE PRODUCT IN Made) were being made <u>other</u> than in a control room</p>	<p>YES..... 1 NO 2</p>	<p>* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").</p>
<p>ONLY ASK QualitySample IF TypeOfWork = 02, 03, 05, OR 08 (QC, PRODUCTION, ENGINEERING, OR RESEARCH)</p> <p>QualitySample. Take a sample from the process equipment for quality control, quality assurance, QC, or QA purposes</p>	<p>YES..... 1 NO 2</p>	<p>* ASK NumTime2 SUBROUTINE (ACTIVITY = "taking a sample").</p> <p>* IF QualitySample > PER DAY, ASK TAKING SAMPLES QUESTIONS.</p>
<p>ONLY ASK CleanEquipment IF TypeOfWork = 01 OR 03 (MAINTENANCE OR PRODUCTION).</p> <p>CleanEquipment. Clean reactors, kettles, filters, molding machines, or other equipment used to make the (PRODUCTS FOR WHICH MakeProduct = YES OR SINGLE PRODUCT IN Made)</p>	<p>YES..... 1 NO 2</p>	<p>* ASK Timespent1 SUBROUTINE (ACTIVITY = "did you clean equipment").</p> <p>* IF CleanEquipment > 1 HR/WK, ASK CLEAN EQUIPMENT QUESTIONS.</p>
<p>ONLY ASK PackMaterials IF TypeOfWork = 01 OR 07 (MAINTENANCE OR SHIPPING).</p> <p>PackMaterials. Pack or package materials</p>	<p>YES..... 1 NO 2</p>	<p>* ASK Timespent1 SUBROUTINE (ACTIVITY = "did you do this").</p> <p>* IF PackMaterials > 1 HR/WK, ASK PACKING MATERIALS QUESTIONS.</p>

<p>ONLY ASK LoadOrUnload IF TypeOfWork = 03, 04, OR 07 (PRODUCTION, UTILITIES, OR SHIPPING).</p>	<p>YES..... 1 NO 2</p>	<p>* ASK NumTimes2 SUBROUTINE (ACTIVITY = "did you load or unload chemicals").</p>
<p>LoadOrUnload. Unload from or load into tank trucks, tank cars, or rail cars the (PRODUCTS FOR WHICH MakeProduct = YES OR SINGLE PRODUCT IN Made)</p>		<p>* ASK LOADING/ UNLOADING QUESTIONS.</p>

BOX CHI-3

ASK **ChemicalsInArea** THROUGH **OtherChemicalsAdded** IF **TypeOfWork** = 03 (PRODUCTION.)

ChemicalsInArea. What specific chemicals were being made in the area where you worked?

Ran. Did you run:

	<u>YES</u>	<u>NO</u>
Reactor. Reactors?	1	2
Kettle. Kettles?	1	2
Distillation Tower. Distillation towers?.....	1	2
Quencher. Quenchers?.....	1	2
OtherEquipment. Some other equipment? (SPECIFY).....	1	2

EquipmentSpecify

BOX CHI-4

IF **Ran (Reactor THROUGH OtherEquipment)** ALL = NO, DK, OR RF, ASK **InArea**. OTHERWISE, GO TO **OpenOrClosed**.

InArea. Were any of the following types of equipment in the area where you worked:

	<u>YES</u>	<u>NO</u>
Reactor. Reactors?	1	2
Kettle. Kettles?	1	2
Distillation Tower. Distillation towers?.....	1	2
Quencher. Quenchers?.....	1	2
OtherEquipment. Some other equipment? (SPECIFY).....	1	2

EquipmentSpecify

BOX CHI-5

IF **InArea (Reactor THROUGH OtherEquipment)** ALL = NO, GO TO **AddChemicals**.

OpenOrClosed. Which best describes the equipment where you worked: closed or open? "Closed" means that the equipment had covers on them and pipes were used to transport most of the material from any piece of equipment to another. "Open" means there were no covers on the equipment, and pipes were not used to transport most of the material.

- CLOSED..... 1
- OPEN 2
- BOTH 3
- NEITHER (SPECIFY) 4

OpenOrClosedSpec

AddChemicals. Did you add chemicals into the equipment, either manually or automatically?

- YES 1
- NO 2 (END MODULE)

ChemicalsAdded. What chemicals were these?

OtherChemicalsAdded. What other chemicals, if any, were added by other workers, using either method?

[INTERVIEWER: ENTER "NONE" IF NO OTHER CHEMICALS WERE ADDED.]

Protective. ASK PROTECTIVE MINI-MODULE (ACTIVITY = "chemicals were added").

BOX CHI-6

ASK **ProtectedTasks** OR **DidProtectedTask** FOR TYPE OF EACH PROTECTIVE EQUIPMENT SUBJECT REPORTED WEARING IN **RespiratorType**.

- ONLY ASK **TakeSamples** IF **QualitySample** = 1 (YES).
- ONLY ASK **CleanEquipment** IF **CleanEquipment** =1 (YES).
- ONLY ASK **LoadOrUnload** IF **LoadOrUnload** = 1 (YES).
- ONLY ASK **Pack** IF **PackMaterials** = 1 (YES).

ONLY ASK **OtherTask** IF AT LEAST ONE OTHER TYPE OF TASK WAS ASKED ABOUT IN **ProtectedTasks**.

IF NO TYPE OF TASK WOULD BE ASKED ABOUT IN **ProtectedTasks**, DO NOT ASK **ProtectedTasks** AND GO TO **DidProtectedTask**.

ProtectedTasks. What tasks did you do while you were wearing (PROTECTIVE EQUIPMENT IN **RespiratorType**)? Did you wear it while you:

		<u>YES</u>	<u>NO</u>
TakeSamples.	Took samples?	1	2
CleanEquipment.	Cleaned equipment?	1	2
LoadOrUnload.	Loaded or unloaded on top of a car or truck?.....	1	2
Pack.	Packed?	1	2
OtherTask.	Did anything else? (SPECIFY)	1	2

TaskSpecify

GO TO BOX CHI-7.

DidProtectedTask. What tasks did you do while you were wearing (PROTECTIVE EQUIPMENT IN **RespiratorType**)?

BOX CHI-7

IF **TypeOfWork** ≠ 03 (NOT PRODUCTION), ASK NON-PRODUCTON WORKERS MINI-MODULE.

* TAKING SAMPLES QUESTIONS (ChemCollect THROUGH HowCollected)

ChemCollect. What chemicals did you collect?

WhereCollected. Where in the process did you collect the samples?

HowCollected. How did you usually collect the samples? [SHOW CARD CHI-1.]

- PLACING A SAMPLE CONTAINER INSIDE A VENTILATED BOX AND FILLING THE CONTAINER 10
- POKING THE RUBBER OR PLASTIC MEMBRANE OF A SAMPLE CONTAINER WITH A NEEDLE, TURNING A VALVE AND FILLING THE CONTAINER 11
- TURNING A VALVE, SPIGOT, OR SIMILAR DEVICE AND FILLING A SAMPLE CONTAINER OUT IN THE OPEN AIR 12
- CONNECTING A SAMPLE CONTAINER TO THE PROCESS LINE SO THAT THE PROCESS CHEMICAL FLOWED THROUGH THE CONTAINER..... 13
- USING SOME OTHER METHOD (SPECIFY) 96

MehodSpecify

END OF JOB MODULE

* CLEAN EQUIPMENT QUESTIONS (TypeOfEquipment THROUGH CleaningChem)

TypeOfEquipment. What equipment did you clean?

ChemicalsRemoved. What chemicals were in the equipment when you cleaned it?

CleaningChem What chemicals did you use to clean it? [LIST ALL THAT APPLY.]

SOAP 1
WATER 2

* PACKING MATERIALS QUESTIONS (FormOfMaterials THROUGH ChemPack)

FormOfMaterial. Was the material you packed a dust, a liquid, or a gas?

DUST 1 (END MODULE)
LIQUID 2
GAS 3 (END MODULE)
OTHER (SPECIFY) 4

FormSpecify

Ventilated. Was there ventilation at the packing machine that removed vapors from where you worked?

YES 1
NO 2

IF **ChemicalsInArea** ALREADY ASKED, END SERIES.

ChemPack. What specific chemicals did you pack?

* LOADING/UNLOADING QUESTIONS (HowLoaded THROUGH LoadUnloadChems)

HowLoaded. Did you pump the chemicals from a truck or railcar into a storage tank or bin, or were the chemicals in containers?

- MATERIALS WERE IN CONTAINERS 1 (END SERIES)
- PUMPED MATERIALS TO OR FROM A STORAGE TANK 2
- BOTH (SPECIFY WHAT WAS PUMPED) 3

MaterialPumped

- NEITHER 4 (END SERIES)
- RF **(RecoverySystem)**
- DK **(RecoverySystem)**

TopOrBottom. Did you load or unload chemicals from the top of the truck or car or from the bottom?

- TOP 1
- BOTTOM 2 **(RecoverySystem)**
- SOME TOP, SOME BOTTOM 3
- NEITHER 4 **(RecoverySystem)**
- DK **(RecoverySystem)**

Opening. Was there a cover over the opening on top when you loaded or unloaded to keep fumes to a minimum, or was the truck or car opening uncovered?

- COVERED 1
- UNCOVERED 2 (BOX CHI-8)
- SOMETIMES COVERED, SOMETIMES UNCOVERED 3
- DK (BOX CHI-8)

RecoverySystem. Was there a vapor recovery system on the pumping equipment when you loaded or unloaded chemicals?

- YES 1
- NO 2
- SOMETIMES 3

BOX CHI-8
IF **TopOrBottom** = 1 OR 3, ASK **TimeOnRailCar**.

TimeOnRailCar. ASK MinHrs SUBROUTINE (ACTIVITY = "did you spend time on tope of the truck or rail car").

LoadUnloadChems. What chemicals did you handle during loading or unloading?

PROTECTIVE MINI-MODULE

WoreProtectiveItems. While working at this job, did you wear any protective clothing or equipment?

YES 1
 NO 2 (END MINI-MODULE)

ProtectiveItems. What protective equipment did you use? Did you use:

		<u>YES</u>	<u>NO</u>
Gloves.	Gloves?	1	2
ApronOrOtherClothing.	An apron or special clothing?	1	2
RespiratorOrMask.	A respirator or mask?	1	2

IF RespiratorOrMask = YES, ASK RespiratorType.

RespiratorType. What type of respirator or mask did you wear? (MARK ALL THAT APPLY.)

SHOW CARD

An air-supplied respirator that looks like a scuba respirator? 1
 A paper mask? 2
 A chemical cartridge respirator? 3
 Another type of respirator? (SPECIFY) _____ 6
SpecifyRespirator