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 _____ **ChemicalSpecify** NO...................................... 2	

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

YES... 1
NO 2

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                           BOX CHI-2

IF MakeProduct ALL = NO, DK, OR RF (≠ 1), END MODULE.
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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	ASK **DidTask** FOR EACH ACTIVITY (**Ventilated Room** THROUGH **LoadOrUnload)** BEFORE GOING TO **TaskSpecifics.**
	
	DidTask.
	  Did you ever (ACTIVITY)?
		IF YES TO **DidTask**, ASK **TaskSpecifics** IF (*).
		
		TaskSpecifics.
		  You said that, at this job, you had to (ACTIVITY).

ONLY ASK **VentilatedRoom** THROUGH **NonControlRoom** IF **TypeOfWork** = 03 (PRODUCTION). **VentilatedRoom.** Work in a room where the air was removed to outside the control room by a fan or exhaust system	YES................................ 1 NO 2	* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").
UnventilatedRoom Work in a control room where the inside air was not removed from the control room	YES................................ 1 NO 2	* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").
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	YES................................ 1 NO 2	* ASK PERCENT SUBROUTINE (ACTIVITY = "doing this").
ONLY ASK **QualitySample** IF **TypeOfWork** = 02, 03, 05, OR 08 (QC, PRODUCTION, ENGINEERING, OR RESEARCH) **QualitySample.** Take a sample from the process equipment for quality control, quality assurance, QC, or QA purposes	YES................................ 1 NO 2	* ASK NumTime2 SUBROUTINE (ACTIVITY = "taking a sample"). * IF **QualitySample** > PER DAY, ASK **TAKING SAMPLES QUESTIONS.**
ONLY ASK **CleanEquipment** IF **TypeOfWork** = 01 OR 03 (MAINTENANCE OR PRODUCTION). **CleanEquipment.** Clean reactors, kettles, filters, molding machines, or other equipment used to make the (PRODUCTS FOR WHICH **MakeProduct** = YES OR SINGLE PRODUCT IN **Made**)	YES................................ 1 NO 2	* ASK Timespent1 SUBROUTINE (ACTIVITY = "did you clean equipment"). * IF **CleanEquipment** > 1 HR/WK, ASK **CLEAN EQUIPMENT QUESTIONS.**
ONLY ASK **PackMaterials** IF **TypeOfWork** = 01 OR 07 (MAINTENANCE OR SHIPPING). **PackMaterials.** Pack or package materials	YES................................ 1 NO 2	* ASK Timespent1 SUBROUTINE (ACTIVITY = "did you do this"). * IF **PackMaterials** > 1 HR/WK, ASK **PACKING MATERIALS QUESTIONS.**

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

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:

		YES	NO
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:

		YES	NO
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

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:

		YES	NO
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** $\neq$ 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

<u>* CLEAN EQUIPMENT QUESTIONS</u> (**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

<u>* PACKING MATERIALS QUESTIONS</u> (**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?

　　　　　　　　　　　_____

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

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                    BOX CHI-8

    IF TopOrBottom = 1 OR 3, ASK TimeOnRailCar.
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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:

		YES	NO
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.)

                    An air-supplied respirator that looks like a scuba respirator? 1
    ┌─────────┐   A paper mask? 2
    │ SHOW   │   A chemical cartridge respirator? 3
    │ CARD   │   Another type of respirator? (SPECIFY) _____ 6
    └─────────┘   **SpecifyRespirator**