Forms Follow Function

Paul Penn

EnMagine Inc

NIEHS/ICTW *Local, State and Federal Partnerships for Chemical Preparedness and Response*

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"It is the pervading law of all things organic, and inorganic,
of all things physical and metaphysical,
of all things human and all things super-human,
of all true manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that **form ever follows function**.

This is the law.“

Louis Sullivan, America's First Modern Architect

“The law is an ass...” Charles Dickens

“Form follows function - that has been misunderstood. Form and function should be one, joined in a spiritual union.” Frank Lloyd Wright

Setting

- Hospital-based hazardous materials emergency response training meeting the:
  - Awareness
  - Operations
  - On Scene Incident Commander (Hospital Hazardous Materials Incident Commander)

Requirements of the Hazardous Waste Operations and Emergency Response Standard section (q) for First Responders and First Receivers

- HAZ
  - WOP
    - ERRRRRRR!
- But that is another story

*"I need someone well versed in the art of torture—
do you know PowerPoint?"*

Objectives- By the end of this presentation students will be able to….

- Identify three forms that can be used as tools to teach hazardous materials emergency response
- Apply techniques provided in this presentation to worker training
- Know when to run…

Challenge

- How to teach
  - Complex Concepts
  - Detailed Information
  - Use of tools

  - At the appropriate level, in a restricted timeframe, so that successful students can demonstrate competency by responding safely and effectively within their expected job functions

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EnMagine Uses These Forms (and others)

- ICS/HICS 201/202
- Site Safety and Control Plan
- HARM Worksheet
- (and Job Action Sheets and Task Sheets)
  - To help identify what are the hazards and how to organize and manage the event.
  - And to develop a basic useable Incident Action Plan

Use of National Incident Management System/ Hospital Incident Command System forms 201/202

MANAGING THE EVENT

Start With a HICS 201/202 Form

INCIDENT BRIEFING HICS (201)	1. Incident Name	2. Date Prepared	3. Time Prepared
4. Map Sketch (First floor)			
HICS (201)	ared by *(Name and position)*		

INCIDENT OBJECTIVES HICS (202)	1. Incident Name	2. Date prepared	3. Time prepared
4. Operational period (date/time)			
5. General Control Objectives for the Incident (include alternatives)			
6. Weather Forecast for Period			
7. General Safety Message			
8. Attachments (mark if attached)			
❑ Organization List –HICS 203 ❑ Division Assignment List – HCIS 204 ❑ Communications Plan – HICS 205	❑ Medical Plan – HICS 206 ❑ Incident Map – HICS ❑ Traffic Plan - HICS	❑ (Other) ❑	
9. Prepared by (Planning Section Chief)	10. Approved by (Incident Commander)		

HICS (202)

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Excerpts from the HazMat for Healthcare™ First Responder Receiver Awareness and Operations Course

201/202 – INCIDENT BRIEFING/OBJECTIVES

OPERATIONAL PERIOD:

1. INCIDENT NAME

2. DATE OF BRIEFING

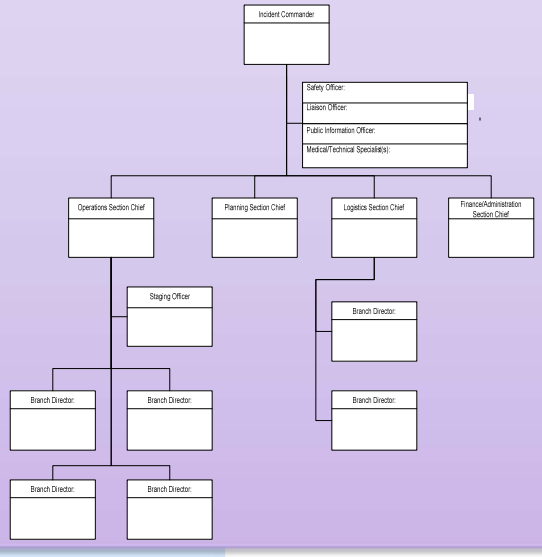
3. TIME OF BRIEFING

4. EVENT HISTORY:

5. OBJECTIVES

6. CURRENT ACTION SUMMARY

7. CURRENT INCIDENT ORGANIZATION



8. WEATHER / ENVIRONMENTAL IMPLICATIONS FOR PERIOD (include, as appropriate: forecast, wind speed/direction, daylight)

9. GENERAL SAFETY / STAFF MESSAGES TO BE GIVEN

(Examples: Personal Protective Equipment (PPE), Evacuations, Gas Definition, refer to HICS 261 Incident Action Plan Safety Analysis)

10. NOTES (including accomplishments, issues, warnings/directives)

11. ATTACHMENTS (if needed; mark if attached)

Organization Assignment List - HICS 203	Medical Plan - HICS 204	Traffic Plan
Branch Assignment List - HICS 204	Facility System Status Report – HICS 251	Incident Map
Incident Communications Plan - HICS 205	Incident Action Plan Safety Analysis –HICS 261	Other_Site Safety Plan _____

8. PREPARED BY (PLANNING SECTION CHIEF):

10. APPROVED BY (INCIDENT COMMANDER):

7. PREPARED BY (NAME AND POSITION)

8. FACILITY NAME

ICS 202 Response Obj.

1. Incident Name	2. Operational Period (Date/Time) From: To:	INCIDENT OBJECTIVES ICS 202

3. Objective(s)

4. Operational Period Command Emphasis (Safety Message, Priorities, Key Decisions/Directions)

PRIORITIES:

LIMITATIONS/ CONSTRAINTS:

COMMAND POLICIES:

MANAGING A HAZMAT EVENT SAFELY

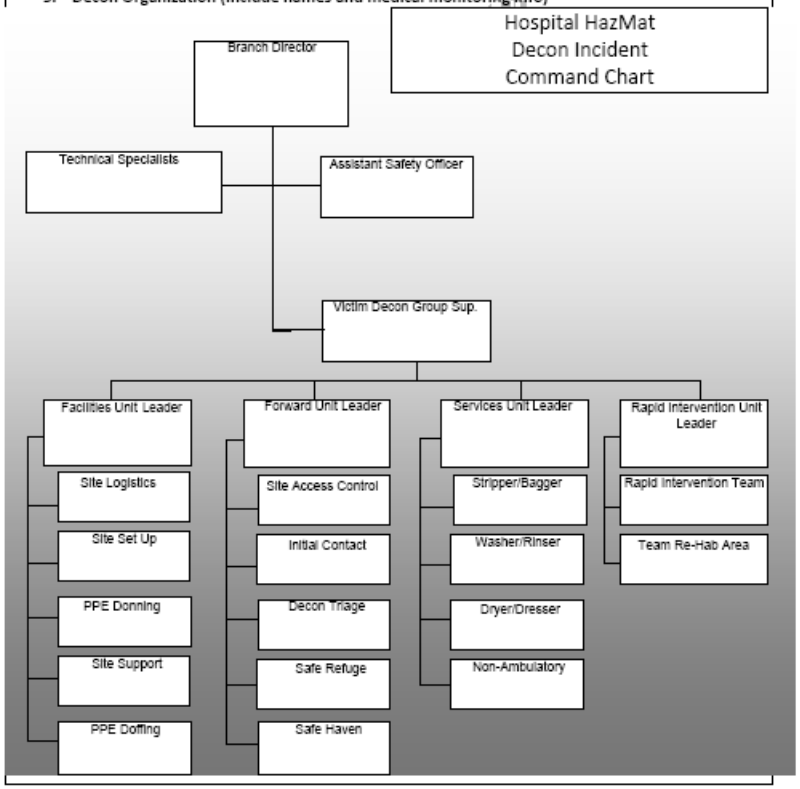
Site Safety and Control Plan

Hospital Hazardous Materials Site Safety and Control Plan - Annex

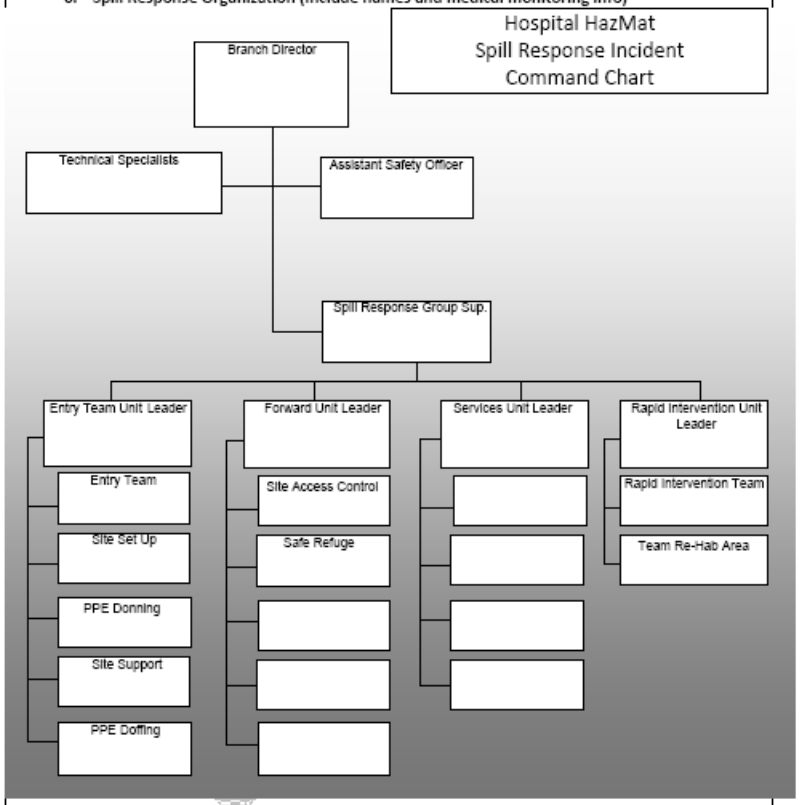
(To be used with and attached to IAP and Hazardous Materials Site Safety and Control Plan and HARM Worksheet)

1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:
☐ Decon	☐ Spill Response	☐ Both
4. Site Access Issues? (including weather)		

5. Decon Organization (Include names and medical monitoring info)



6. Spill Response Organization (Include names and medical monitoring info)



7. Incident Commander	8. Operations Chief
9. Safety Officer	10.

11. Hazard Monitoring (type and readings)		
Oxygen	Flammability (LEL)	Toxicity
Radiological	Other	Other

Site Safety and Control Plan

12. Communications			
Tactical Frequency	Decon	Spill Response	Command Frequency
o Hand Signals Reviewed			Whiteboard
Loud Hailer (bull horn)			Other

13. Decontamination Objectives
14. Spill Response Objectives

15. Type of Decon	o Precautionary/Secondary/ Patient	o Emergency	o Technical
16. Type of Spill Response	o Offensive (Tech/Spec)	o Contain/ Control (Ops)	o SIN (Awareness)

17. Victim Decon Guidelines and Work Practices and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, chemical specific hazards and warning signs, decon solutions if other than soap and tepid water)
18. Response Guidelines and Work Practices and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, chemical specific hazards and warning signs, tools needed, Responder Decon Guidelines if different than above)

19. Personal Protective Equipment (PAPR w/Multigas Cartridge, Liquid Splash Suit, Double gloves, Boots) Note if different					
Respiratory Protection	None	APR	PAPR	SAR	SCBA
Initial Contact/ Decon Triage/ Safe Refuge			Dryer-Dresser/Safe Haven (may be Standard Precautions)		
Stripper-Bagger/Washer-Rinser/ Non-Ambulatory			Site Access		
Rapid Intervention			Entry Team		

20. Emergency Procedures	Victim Decon	Spill Response
Injury/Illness in Zones		
Fire/Explosion		
PPE Failure		
Emergency Evacuation Route and Congregation Area		

21. Victim Decon Site Map
22. Spill Response Site Map

23. Safety Briefing Completed: Time	24. By Whom:

KNOWING WHAT THE HAZARDS ARE

HARM Worksheet

HAZ MAT FOR HEALTHCARE
HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ (1 to 9) Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m^3 _____ TWA 8 Hrs / STEL Short / C Ceiling / IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

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HARM-Risk Assessment Worksheet v4.3

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A Little Context

- The HazMat for Healthcare™ First Responder/Receiver Awareness and Operations course consists of four 4 hour modules (Awareness, Personal Protective Equipment, Foundation, Spill Response and Decontamination)
- These forms are introduced in the third module- Foundation (second if not delivered consecutively) and utilized in the fourth module (Spill Response and Decontamination)

More Context

- The Hospital Hazardous Materials Incident Commander (HHMIC) is an eight hour course designed to meet the HAZWOPER requirements of the On Scene Incident Commander- building on Operations level competencies.

Let's Start With The HARM Worksheet

- First encountered at an NIEHS Trainers' Workshop (by OCAW?)
- Has evolved (and is still evolving) to meet EnMagine's training needs
- Is also used for pre-event planning at some facilities

How Used To Meet The Challenge

- Related curriculum covers a vast amount of information in a short period of time
- HARM worksheet is used to give meaning to the course content
- Worksheet initially filled out collectively as each component is covered using one chemical (xylene) as an example with supporting reference material
  - MSDS, ATSDR MMG, NIOSH Pocket Guide, DOT ERG

How Used To Meet The Challenge

- Then, using the Small Group Activity Method, each group is given the same reference material for a different chemical.
- The groups fill out the HARM Worksheet for the specified chemical (parathion, hydrogen chloride, mercury, phenol, formaldehyde, ammonia)
- The groups then report back to the class functioning as the Assistant Safety Officer and Technical Reference to convey "what the responders should know about the chemical"
- The instructor then compares and contrasts the different chemicals

How The Worksheet Drives Comprehension

- Identify hazards in the middle of the Worksheet
  - Determine relative HARM potential on right side of Worksheet
    - To answer questions on the bottom of the Worksheet

HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ (1 to 9) Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ TWA 8 Hrs · STEL Short · C Ceiling · IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____ mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

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HARM-Risk Assessment Worksheet v4.3

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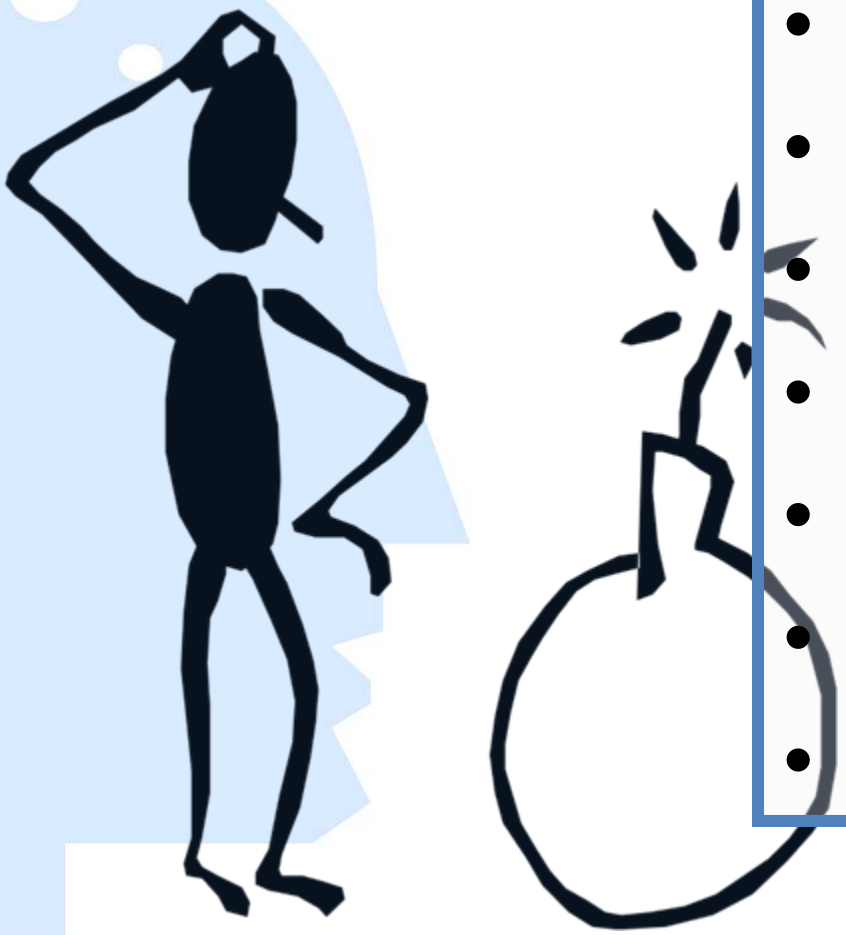
Page numbers refer to where information is found in student notebook

Ways Haz Mats Can Harm



- Toxicity
- Radioactivity
- Explosivity
- Flammability
- Corrosivity
- Reactivity
- Asphyxiationity (new word)

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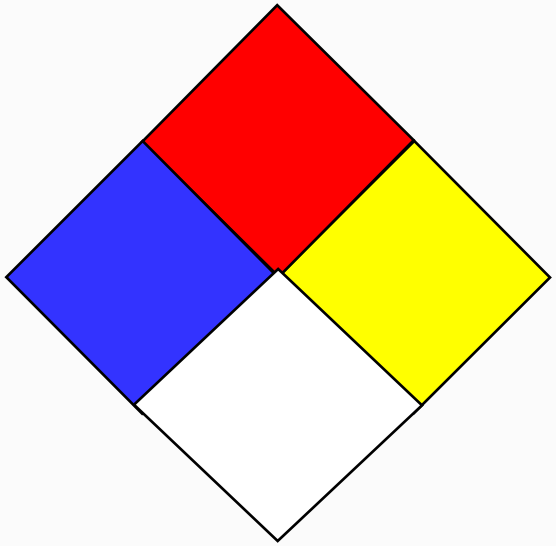
Info Sources to Aid IDHA

- NFPA 704 System
  - Blue = Health
  - Red = Flammability
  - Yellow = Reactivity
  - No color = special hazards



in diamond 0 = No Hazard to 4 = Worst Hazard

HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ Physical State: _____
1 to 9 (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
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Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
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Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

© HAZ MAT FOR HEALTHCARE
HARM-Risk Assessment Worksheet v4.3

Material Safety Data Sheet

16. Other Information

NFPA Ratings: Health: 2 Flammability: 3 Reactivity: 0

Label Hazard Warning:

DANGER! HARMFUL OR FATAL IF SWALLOWED. VAPOR HARMFUL. AFFECTS CENTRAL
NERVOUS SYSTEM. CAUSES SEVERE EYE IRRITATION. CAUSES IRRITATION TO SKIN AND
RESPIRATORY TRACT. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. CHRONIC EXPOSURE

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Info Sources

DOT Emergency Response Guidebook (ERG)

- ERG purpose:
  - Basic safety tool
  - Basic identification
  - Initial actions

Info Sources

ERG Organization

- White — Basic info & instructions
- Yellow — UN #, guide # & material name
- Blue — Material name, guide # & UN #
- Orange — Chemical information
- Green —Isolation & Protective Actions

ID No.	Guide No.	Name of Material
1287	127	Rubber solution
1288	128	Shale oil
1289	132	Sodium methylate, solution in alcohol
1292	129	Ethyl silicate
1292	129	Tetraethyl silicate
1293	127	Tinctures, medicinal
1294	130	Toluene
1295	139	Trichlorosilane
1296	132	Triethylamine
1297	132	Trimethylamine, aqueous solution
1298	155	Trimethylchlorosilane
1299	128	Turpentine
1300	128	Turpentine substitute
1301	129P	Vinyl acetate, stabilized
1302	127P	Vinyl ethyl ether, stabilized
1303	130P	Vinylidene chloride, stabilized
1304	127P	Vinyl isobutyl ether, stabilized
1305	155P	Vinyltrichlorosilane
[illegible]	[illegible]	[illegible] stabilized
1306	129	Wood preservatives, liquid
1307	130	Xylenes
1308	170	Zirconium metal, liquid suspension
[illegible]	[illegible]	[illegible] suspended in a flammable liquid
1308	170	Zirconium suspended in a liquid (flammable)
1309	170	Aluminum powder, coated
1310	113	Ammonium picrate, wetted with not less than 10% water
1312	133	Borneol
1313	133	Calcium resinate

ID No.	Guide No.	Name of Material
1314	133	Calcium resinate, fused
1318	133	Cobalt resinate, precipitated
1320	113	Dinitrophenol, wetted with not less than 15% water
1321	113	Dinitrophenolates, wetted with not less than 15% water
1322	113	Dinitroresorcinol, wetted with not less than 15% water
1323	170	Ferrocerium
1324	133	Films, nitrocellulose base
1325	133	Flammable solid, n.o.s.
1325	133	Flammable solid, organic, n.o.s.
1325	133	Fusee (rail or highway)
1325	133	Medicines, flammable, solid, n.o.s.
1326	170	Hafnium powder, wetted with not less than 25% water
1327	133	Bhusa, wet, damp or contaminated with oil
1327	133	Hay, wet, damp or contaminated with oil
1327	133	Straw, wet, damp or contaminated with oil
1328	133	Hexamethylenetetramine
1328	133	Hexamine
1330	133	Manganese resinate
1331	133	Matches, "strike anywhere"
1332	133	Metaldehyde
1333	170	Cerium, slabs, ingots or rods
1334	133	Naphthalene, crude
1334	133	Naphthalene, refined
1336	113	Nitroguanidine (Picrite), wetted with not less than 20% water
1336	113	Nitroguanidine, wetted with not less than 20% water

Name of Material	Guide No.	ID No.
Vinyl bromide, stabilized	116P	1085
Vinyl butyrate, stabilized	129P	2838
Vinyl chloride, stabilized	116P	1086
Vinyl chloroacetate	155	2589
Vinyl ethyl ether, stabilized	127P	1302
Vinyl fluoride, stabilized	116P	1860
Vinylidene chloride, stabilized	130P	1303
Vinyl isobutyl ether, stabilized	127P	1304
Vinyl methyl ether, stabilized	116P	1087
Vinylpyridines, stabilized	131P	3073
Vinyltoluenes, stabilized	130P	2618
Vinyltrichlorosilane	155P	[illegible]
Vinyltrichlorosilane, stabilized	155	1305
VX	153	[illegible]
Water-reactive liquid, corrosive, n.o.s.	138	3129
Water-reactive liquid, n.o.s.	138	3148
Water-reactive liquid, poisonous, n.o.s.	139	3130
Water-reactive liquid, toxic, n.o.s.	139	3130
Water-reactive solid, corrosive, n.o.s.	138	3131
Water-reactive solid, flammable, n.o.s.	138	3132
Water-reactive solid, n.o.s.	138	2813
Water-reactive solid, oxidizing, n.o.s.	138	3133
Water-reactive solid, poisonous, n.o.s.	139	3134
Water-reactive solid, self-heating, n.o.s.	138	3135
Water-reactive solid, toxic, n.o.s.	139	3134
Wheelchair, electric, with batteries	154	3171

Name of Material	Guide No.	ID No.
White asbestos	171	2590
White phosphorus, dry	136	1381
White phosphorus, in solution	136	1381
White phosphorus, molten	136	2447
White phosphorus, under water	136	1381
Wood preservatives, liquid	129	1306
Wool waste, wet	133	1387
Xanthates	135	3342
Xenon	121	2036
Xenon, compressed	121	2036
[illegible], refrigerated liquid (cryogenic liquid)	[illegible]	[illegible]
Xylenes	130	1307
Xylenols	153	2261
Xylenols, liquid	153	[illegible]
Xylenols, solid	153	2261
Xylidines	153	1711
Xylidines, liquid	153	1711
Xylidines, solid	153	1711
Xylidines, solid	153	3452
Xylyl bromide	152	1701
Xylyl bromide, liquid	152	1701
Xylyl bromide, solid	152	3417
Yellow phosphorus, dry	136	1381
Yellow phosphorus, in solution	136	1381
Yellow phosphorus, molten	136	2447
Yellow phosphorus, under water	136	1381
Zinc ammonium nitrite	140	1512
Zinc arsenate	151	1712
Zinc arsenate and Zinc arsenite mixture	151	1712
Zinc arsenite	151	1712
Zinc arsenite and Zinc arsenate mixture	151	1712

POTENTIAL HAZARDS

FIRE OR EXPLOSION

- **HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.**
- Vapors may form explosive mixtures with air.
- Vapors may travel to source of ignition and flash back.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).
- Vapor explosion hazard indoors, outdoors or in sewers.
- Those substances designated with a **"P"** may polymerize explosively when heated or involved in a fire.
- Runoff to sewer may create fire or explosion hazard.
- Containers may explode when heated.
- Many liquids are lighter than water.

HEALTH

- May cause toxic effects if inhaled or absorbed through skin.
- Inhalation or contact with material may irritate or burn skin and eyes.
- Fire will produce irritating, corrosive and/or toxic gases.
- Vapors may cause dizziness or suffocation.
- Runoff from fire control or dilution water may cause pollution.

PUBLIC SAFETY

- **CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.**
- As an immediate precautionary measure, isolate spill or leak area for at least 50 meters (150 feet) in all directions.
- Keep unauthorized personnel away.
- Stay upwind.
- Keep out of low areas.
- Ventilate closed spaces before entering.

PROTECTIVE CLOTHING

- Wear positive pressure self-contained breathing apparatus (SCBA).
- Structural firefighters' protective clothing will only provide limited protection.

EVACUATION

Large Spill

- Consider initial downwind evacuation for at least 300 meters (1000 feet).

Fire

- If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.

EMERGENCY RESPONSE

FIRE

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fire

- Dry chemical, CO_2, water spray or regular foam.

Large Fire

- Water spray, fog or regular foam.
- **Do not use straight streams.**
- Move containers from fire area if you can do it without risk.

Fire involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- ALWAYS stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

SPILL OR LEAK

- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill • Dike far ahead of liquid spill for later disposal.

- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

FIRST AID

- Move victim to fresh air. • Call 911 or emergency medical service.
- Give artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin. • Keep victim warm and quiet.
- Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.
- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ (1 to 9) Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ TWA 8 Hrs · STEL Short · C Ceiling · IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

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HARM-Risk Assessment Worksheet v4.3

Info Sources

ERG—Good But Limited

- Classification of hazard
- Guides — “most essential guidance”
- Isolation/evacuation distances — guides
- Use table of placards only if no ID
- Intended use

IDHA - Acronyms and Terms

- TLV™ - **Time Weighted Average (TLV-TWA)**
  - Average concentration that a worker can be exposed to during a 40 hour week/8 hour day without adverse effects.
- TLV-STEL - **Short Term Exposure Limit**
  - Fifteen minute time-weighted average exposure
- TLV-Ceiling **(TLV-C)**
  - Instantaneous levels which should not be exceeded

IDHA - Acronyms and Terms

- IDLH -Immediately Dangerous to Life & Health
  - Maximum level from which a worker could escape without any escape impairing symptom or irreversible health effect
- PEL - Permissible Exposure Limit
  - OSHA standards - therefore are legal limits
  - Based on TLV's and many are identical
  - Include 8 hour PEL, 15 minute STEL, and Ceiling Limit

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HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ 1 to 9

Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ — TWA 8 Hrs — STEL Short — C Ceiling — IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% — 50% — 100% Flashpoint: 0° F — 100° F — 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Not, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 — Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
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Yes / No
Can your team handle an internal incidental spill incident without special PPE?
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Other Info of Interest:

What challenges are there to you handling this? _____

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HARM-Risk Assessment Worksheet v4.3

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NIOSH Pocket Guide to Chemical Hazards

NPG Home | Introduction | Synonyms & Trade Names | Chemical Names | CAS Numbers | RTECS Numbers | Appendices | Search

o-Xylene	**CAS** 95-47-6
$C_6H_4(CH_3)_2$	**RTECS** ZE2450000
Synonyms & Trade Names 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol	**DOT ID & Guide** 1307 130

Exposure Limits	NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)		
	OSHA PEL†: TWA 100 ppm (435 mg/m^3)		
IDLH 900 ppm See: 95476	Conversion 1 ppm = 4.34 mg/m^3		
Physical Description Colorless liquid with an aromatic odor.			
MW: 106.2	BP: 292°F	FRZ: -13°F	Sol: 0.02%
VP: 7 mmHg	IP: 8.56 eV		Sp.Gr: 0.88
FlP: 90°F	UEL: 6.7%	LEL: 0.9%	
Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.			

Incompatibilities & Reactivities
Strong oxidizers, strong acids

Measurement Methods
NIOSH 1501, 3800; OSHA 1002
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA
Up to 900 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

NIOSH Pocket Guide to Chemical Hazards

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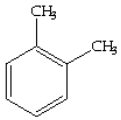
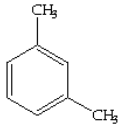
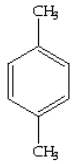


ortho -xylene



meta -xylene



para -xylene

Material Safety Data Sheet

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

-OSHA Permissible Exposure Limit (PEL):

100 ppm (TWA) xylene

100 ppm (TWA) ethylbenzene

-ACGIH Threshold Limit Value (TLV):

xylene: 100 ppm (TWA) 150 ppm (STEL), A4 - Not classifiable as a human carcinogen.

ethyl benzene: 100 ppm (TWA) 125 ppm (STEL), A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans.

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne

Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the

contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH

document, *Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details. Use*

explosion-proof equipment.

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Personal Respirators (NIOSH Approved):

If the exposure limit is exceeded and engineering contro2l0s7 are not feasible, a half-face organic vapor respirator

ATSDR Medical Management Guidelines (MMG)

Standards and Guidelines

OSHA PEL (permissible exposure limit) = 100 ppm (averaged over an 8-hour work shift)

NIOSH IDLH (immediately dangerous to life or health) = 900 ppm

Exposure values are also found in the General Information section of the MMG.

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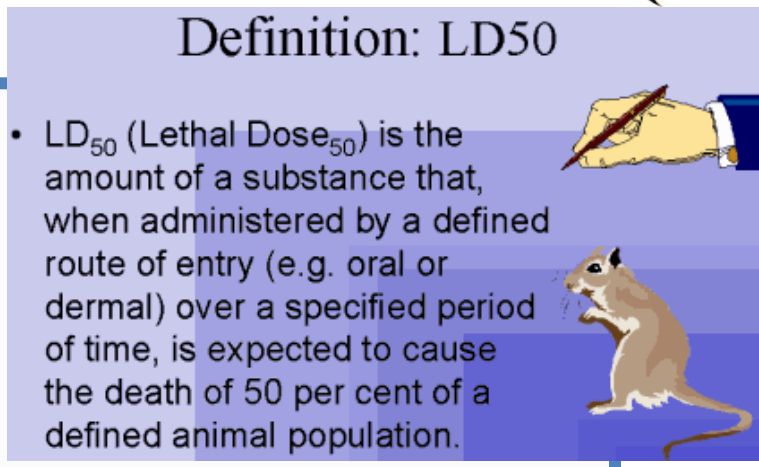
IDHA - Acronyms and Terms

- LD/LC 50
  - Lethal Dose 50%
  - Lethal Concentration 50%
- PPM/MgM^3
  - Parts Per Million
    - measured as volume of contaminant to volume of liquid or air collected in sample
  - Milligrams Per Cubic Meter
    - measured as weight of contaminant to volume of air collected in sample



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Synonyms & Trade Names 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol	**DOT ID & Guide** 1307 130

Exposure Limits	**NIOSH REL:** TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)
	OSHA PEL†: TWA 100 ppm (435 mg/m^3)
IDLH 900 ppm See: 95476	**Conversion** 1 ppm = 4.34 mg/m^3

Physical Description
Colorless liquid with an aromatic odor.

MW: 106.2	BP: 292°F	FRZ: -13°F	Sol: 0.02%
VP: 7 mmHg	IP: 8.56 eV		Sp.Gr: 0.88
Fl.P: 90°F	UEL: 6.7%	LEL: 0.9%	

Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.

Incompatibilities & Reactivities
Strong oxidizers, strong acids

Measurement Methods
NIOSH 1501, 3800; OSHA 1002
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA
Up to 900 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

NIOSH Pocket Guide to Chemical Hazards

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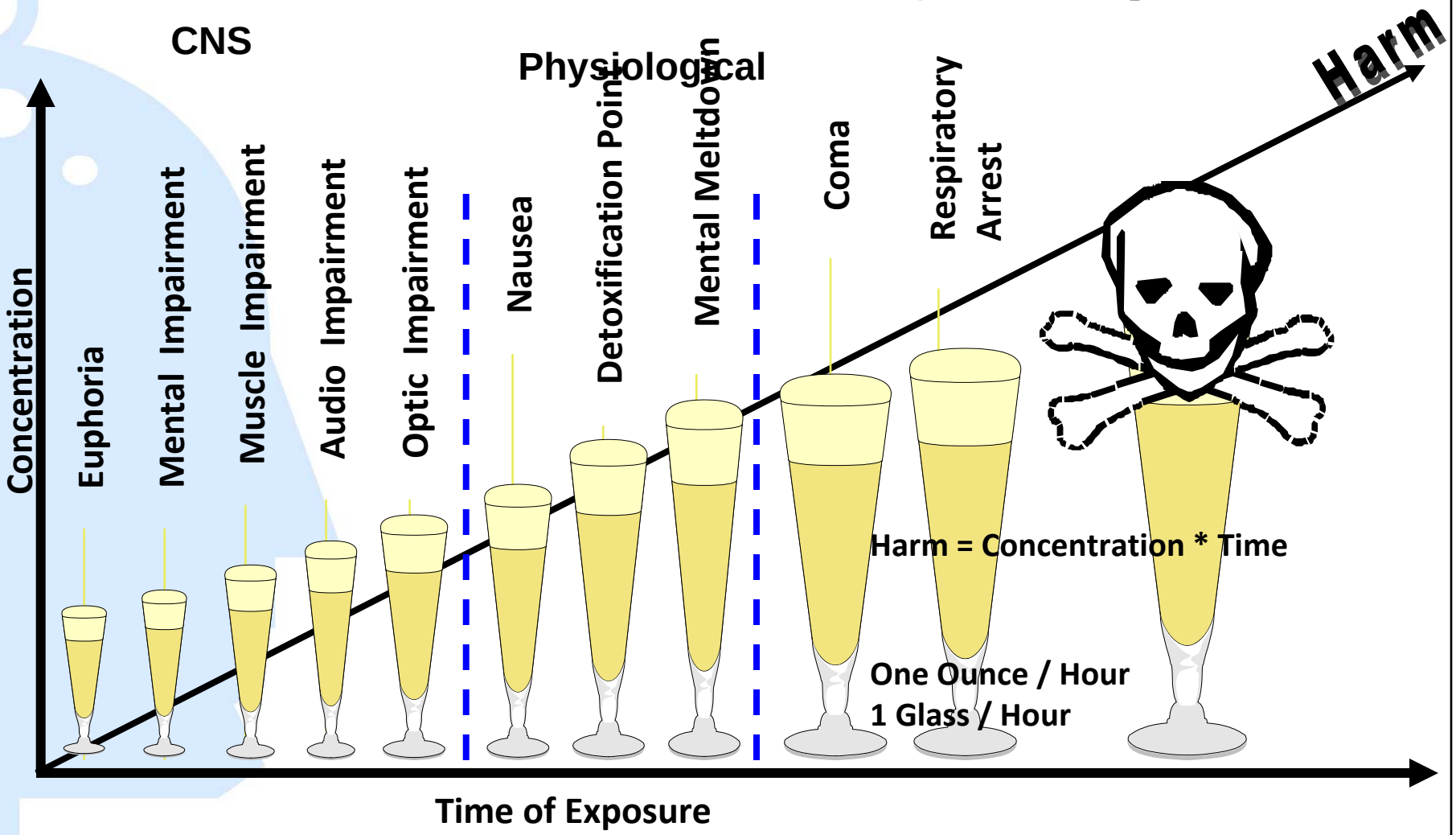
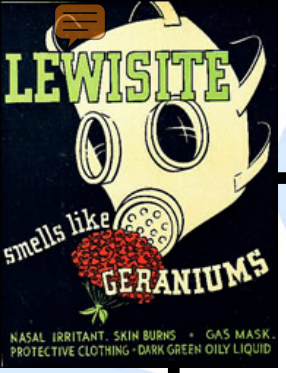
Understanding Toxicity 101

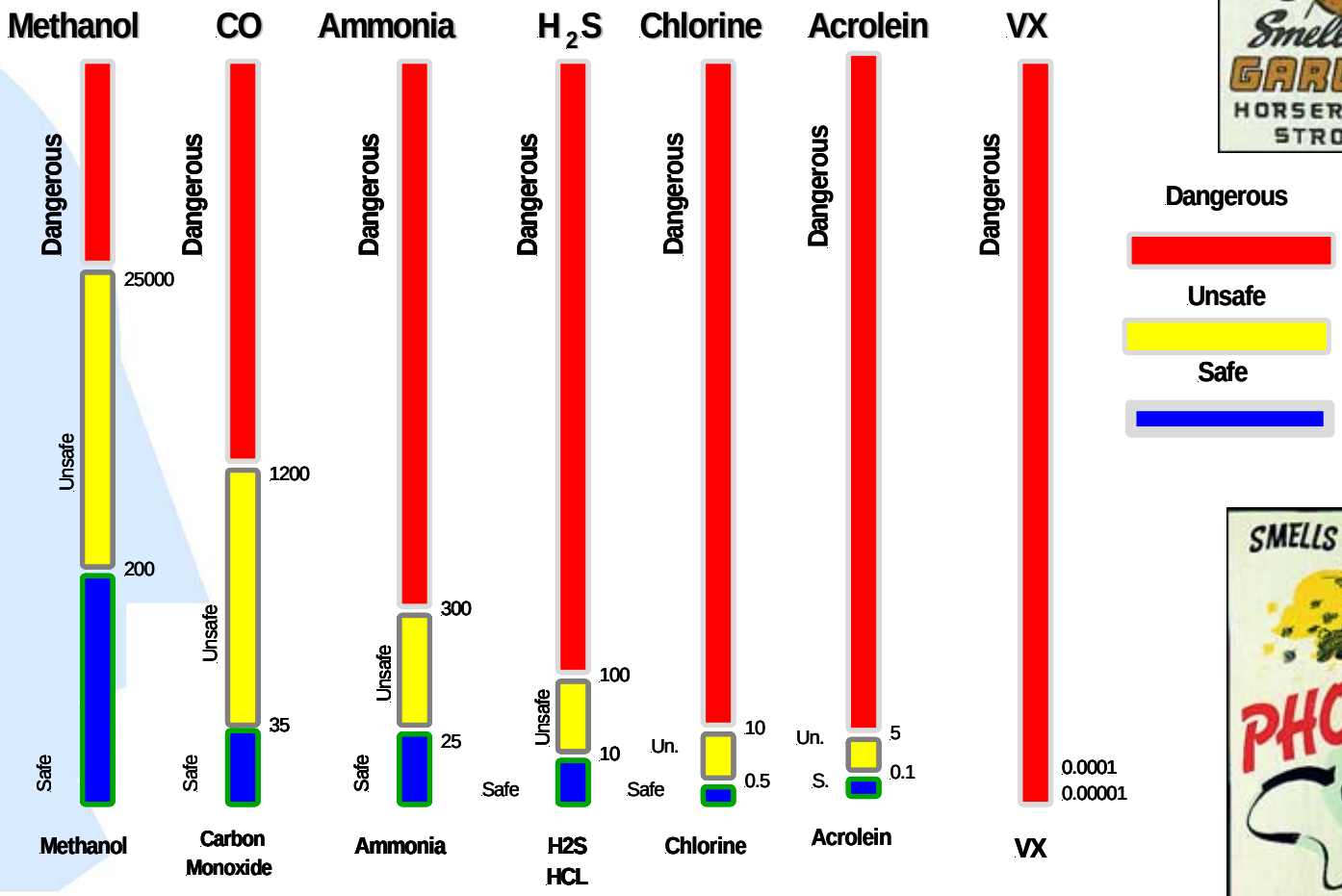
ETHANOL

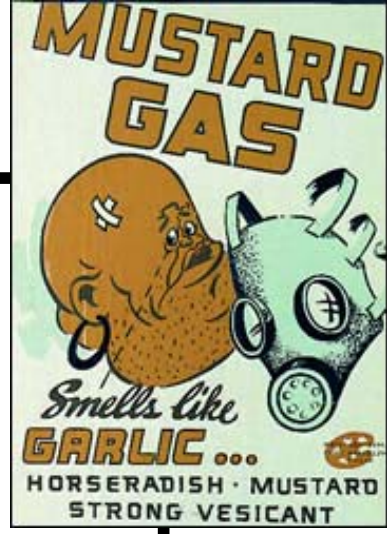


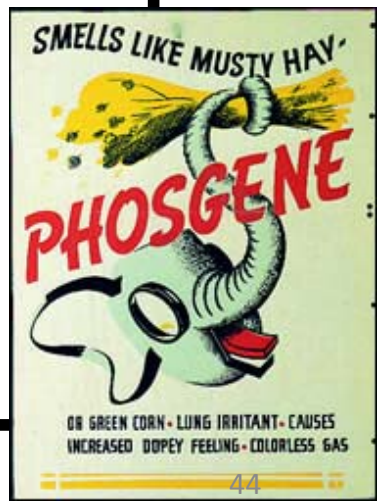
Thanks to Mike Callan for the use of these slides <www.mikecallan.com>



Toxicity Relationships







IDHA - Acronyms and Terms

Fire

- LEL and UEL
  - Lower Explosive/ Upper Explosive Limit
- FR and FL
  - Flammable Range/Flammable Limit

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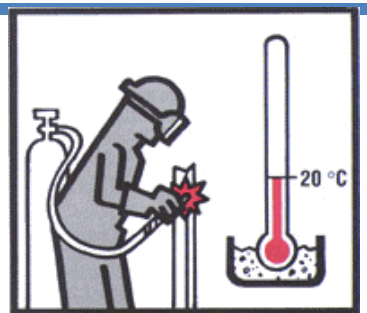
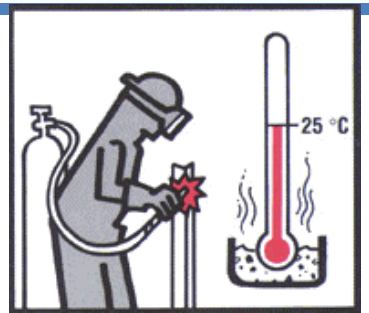
IDHA - Acronyms and Terms

- FP - Flash Point
  - The temperature at which the liquid phase gives off enough vapor to flash when exposed to an external ignition source. [Gasoline = minus 40° F]
- IT - Ignition Temperature/Fire Point
  - The temperature at which a liquid is capable of sustained fire with an external ignition source. [Gasoline = minus 35° F]
- AIT – Auto-Ignition Temperature
  - The temperature at which a mixture of flammable vapor and air would ignite without a spark or flame. (It is always a higher temperature than the Ignition Temperature) [Gasoline = 536° F and Paper = 451° F]





HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ (1 to 9) Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m^3 — TWA (8 Hrs), STEL (Short), C (Ceiling), IDLH (Danger)	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
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PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
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Other Info of Interest:

What challenges are there to you handling this? _____

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Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA
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Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

NIOSH Pocket Guide to Chemical Hazards

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MSDS

5. Fire Fighting Measures

Fire:

Flash point: 29C (84F) CC

Autoignition temperature: 464C (867F)

Flammable limits in air % by volume:

lel: 1.0; uel: 7.0

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ATSDR Medical Management Guidelines

Physical Properties

Description: Clear, colorless liquid
Warning properties: Adequate; sweet, aromatic odor at 1 ppm
Molecular weight: 106.2 daltons
Boiling point (760 mm Hg)*: 292ºF (144ºC), 269ºF (139ºC), and 281ºF (138ºC)
*Freezing point**: -13ºF (-25ºC), -54ºF (-48ºC), and 56ºF (13ºC)
*Specific gravity**: 0.88, 0.86, and 0.86 (water = 1)
*Vapor pressure**: 5, 6, and 6.5 mm Hg at 68ºF (20ºC)
Gas density: 3.8 (air = 1)
Water solubility: insoluble
Flammability*: 63ºF (17ºC), 81ºF (27ºC), 81ºF (27ºC)
Flammable range: 1.0% to 7.0% (concentration in air)
*ortho-, meta-, and para-xylene, respectively.

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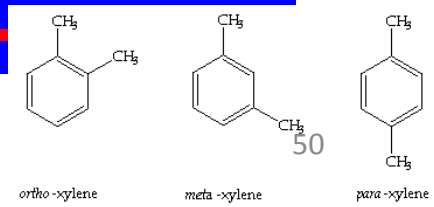
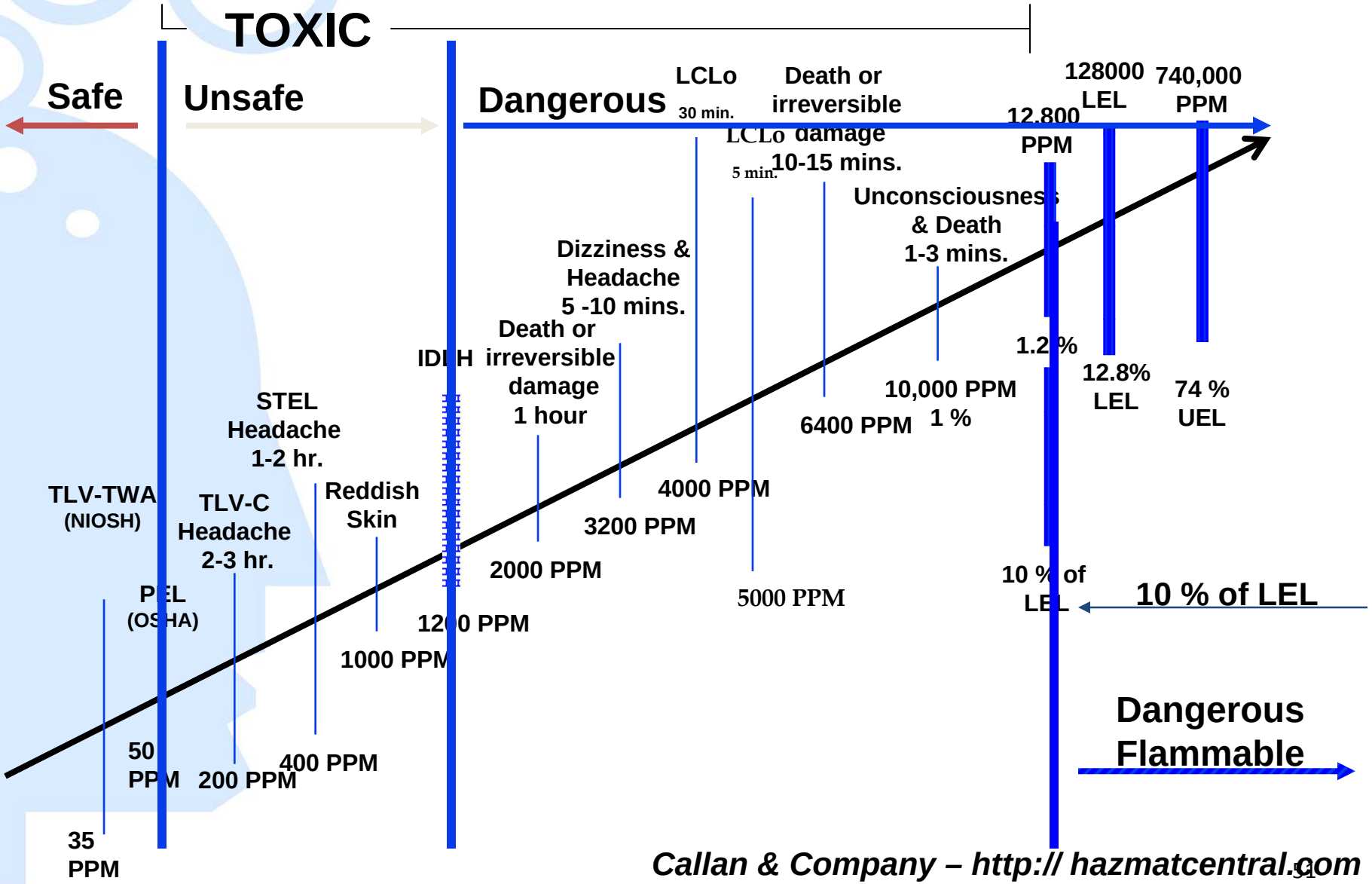


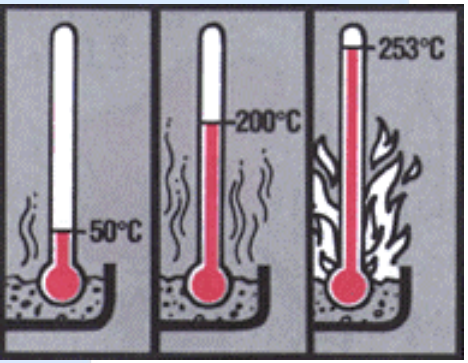
Carbon Monoxide CO

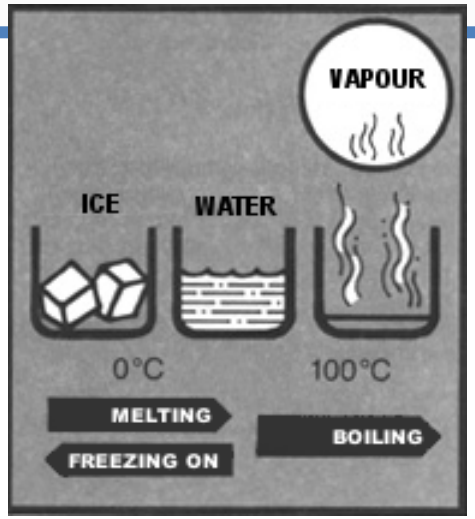


IDHA - Acronyms and Terms

- BP *Boiling Point*
- SG *Specific Gravity*
- Sol *Solubility*

Floaters, Sinkers, Swimmers





HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ **UN# (4 digits)**_____

DOT Hazard Class Category:_____ (1 to 9) **Physical State:** _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ **NFPA: H**___ **F**___ **R**___ **S**___ **(0-4)**

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ TWA 8 Hrs · STEL Short · C Ceiling · IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. = _____ A.I.T. = _____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 · Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

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HARM-Risk Assessment Worksheet v4.3

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NIOSH Publication No. 2005-151: September 2005

NIOSH Pocket Guide to Chemical Hazards

NPG Home | Introduction | Synonyms & Trade Names | Chemical Names | CAS Numbers | RTECS Numbers | Appendices | Search

o-Xylene	**CAS** 95-47-6
$C_6H_4(CH_3)_2$	**RTECS** ZE2450000
Synonyms & Trade Names 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol	**DOT ID & Guide** 1307 130

Exposure Limits	**NIOSH REL:** TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)		
	OSHA PEL†: TWA 100 ppm (435 mg/m^3)		
IDLH 900 ppm See: 95476	**Conversion** 1 ppm = 4.34 mg/m^3		
Physical Description Colorless liquid with an aromatic odor.			
MW: 106.2	BP: 292°F	FRZ: -13°F	Sol: 0.02%
VP: 7 mmHg	IP: 8.56 eV		Sp.Gr: 0.88
Fl.P: 90°F	UEL: 6.7%	LEL: 0.9%	
Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.			

Incompatibilities & Reactivities
Strong oxidizers, strong acids

Measurement Methods
NIOSH 1501, 3800; OSHA 1002
See: NMAM or OSHA Methods

Personal Protection & Sanitation (See protection)
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated
Remove: When wet (flammable)
Change: No recommendation

First Aid (See procedures)
Eye: Irrigate immediately
Skin: Soap wash promptly
Breathing: Respiratory support
Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA
Up to 900 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece
Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus
Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

NIOSH Pocket Guide to Chemical Hazards

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9. Physical and Chemical Properties

The following physical data is for xylene.

Appearance:

Clear, colorless liquid.

Odor:

Characteristic odor.

Solubility:

Insoluble in water.

Specific Gravity:

0.86 @ 20C/4C

pH:

Not applicable.

% Volatiles by volume @ 21C (70F):100

Boiling Point:

137 - 140C (279 - 284F)

Melting Point:

-25C (-13F)

Vapor Density (Air=1): 3.7

Vapor Pressure (mm Hg):

8 @ 20C (68F)

Evaporation Rate (BuAc=1): 0.7

MSDS

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ATSDR Medical Management Guidelines

Physical Properties

Description: Clear, colorless liquid
Warning properties: Adequate; sweet, aromatic odor at 1 ppm
Molecular weight: 106.2 daltons
Boiling point (760 mm Hg)*: 292ºF (144ºC), 269ºF (139ºC), and 281ºF (138ºC)
*Freezing point**: -13ºF (-25ºC), -54ºF (-48ºC), and 56ºF (13ºC)
*Specific gravity**: 0.88, 0.86, and 0.86 (water = 1)
*Vapor pressure**: 5, 6, and 6.5 mm Hg at 68ºF (20ºC)
Gas density: 3.8 (air = 1)
Water solubility: insoluble
Flammability*: 63ºF (17ºC), 81ºF (27ºC), 81ºF (27ºC)
Flammable range: 1.0% to 7.0% (concentration in air)
*ortho-, meta-, and para-xylene, respectively.

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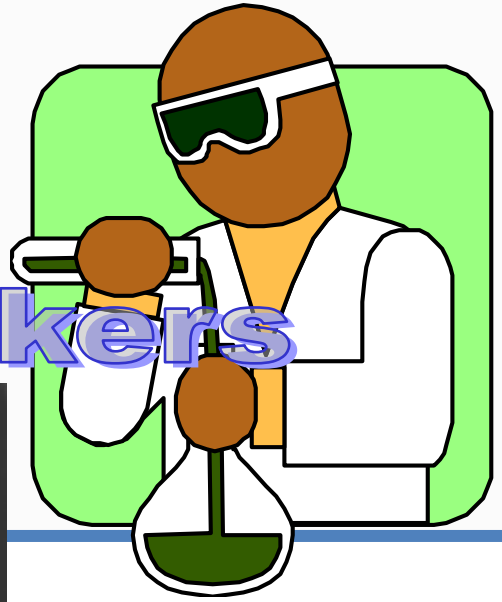
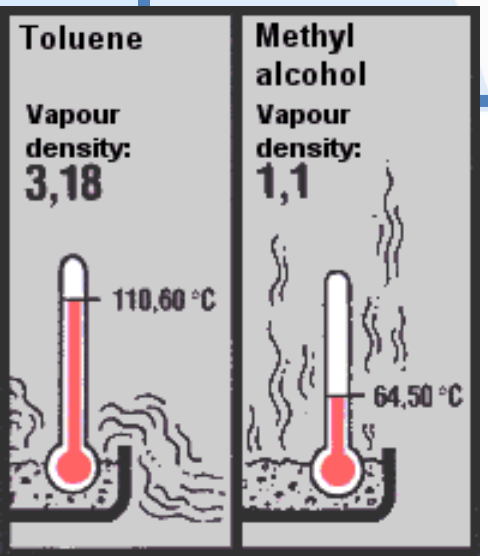
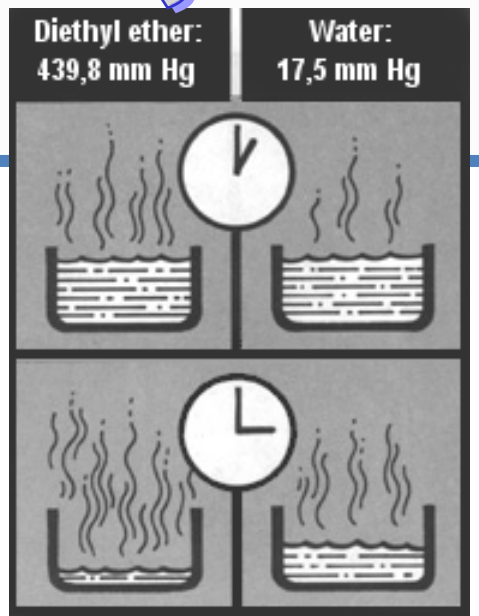
IDHA - Acronyms and Terms

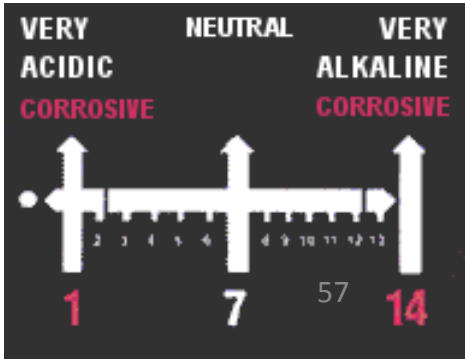
- VD *Vapor Density*
- VP *Vapor Pressure*
- pH *Acidity/Alkalinity*



Floaters, Sinkers







HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ **UN# (4 digits)**_____

DOT Hazard Class Category:_____ (1 to 9) **Physical State:** _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ **NFPA: H**___ **F**___ **R**___ **S**___ **(0-4)**

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ TWA 8 Hrs · STEL Short · C Ceiling · IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0° F 100° F 200° F I.T. =_____ A.I.T. =_____ (paper = 451° F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G. =_____	Liquid? Float / Sink / Neither
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D. =_____	Vapor? Float / Sink / Neither
Vapor Pressure Higher = more vapor, Lower = less vapor Lower B.P. = more vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P. =_____	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = more corrosive	Acid 0-6 · Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, V
Carcinogen	Yes / No	Cancer risk to staff Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an internal incidental spill incident without special PPE?
Yes / No

Other Info of Interest:

What challenges are there to you handling this? _____

_____

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Synonyms & Trade Names 1,2-Dimethylbenzene; ortho-Xylene; o-Xylol	**DOT ID & Guide** 1307 130

Exposure Limits	**NIOSH REL:** TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)		
	OSHA PEL†: TWA 100 ppm (435 mg/m^3)		
IDLH 900 ppm See: 95476	**Conversion** 1 ppm = 4.34 mg/m^3		
Physical Description Colorless liquid with an aromatic odor.			
MW: 106.2*	BP: 292°F	FRZ: -13°F	Sol: 0.02%
VP: 7 mmHg	IP: 8.56 eV		Sp.Gr: 0.88
Fl.P: 90°F	UEL: 6.7%	LEL: 0.9%	
Class IC Flammable Liquid: Fl.P. at or above 73°F and below 100°F.			
Incompatibilities & Reactivities Strong oxidizers, strong acids			
Measurement Methods NIOSH 1501, 3800; OSHA 1002 See: NMAM or OSHA Methods			

Personal Protection & Sanitation (See protection) Skin: Prevent skin contact Eyes: Prevent eye contact Wash skin: When contaminated Remove: When wet (flammable) Change: No recommendation	**First Aid** (See procedures) Eye: Irrigate immediately Skin: Soap wash promptly Breathing: Respiratory support Swallow: Medical attention immediately

Respirator Recommendations NIOSH/OSHA

Up to 900 ppm:
(APF = 10) Any chemical cartridge respirator with organic vapor cartridge(s)*
(APF = 25) Any powered, air-purifying respirator with organic vapor cartridge(s)*
(APF = 10) Any supplied-air respirator*
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister/Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection

Exposure Routes inhalation, skin absorption, ingestion, skin and/or eye contact

Symptoms Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoordination, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis

NIOSH Pocket Guide to Chemical Hazards

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9. Physical and Chemical Properties

The following physical data is for xylene.

Appearance:

Clear, colorless liquid.

Odor:

Characteristic odor.

Solubility:

Insoluble in water.

Specific Gravity:

0.86 @ 20C/4C

pH:

Not applicable.

% Volatiles by volume @ 21C (70F):100

Boiling Point:

137 - 140C (279 - 284F)

Melting Point:

-25C (-13F)

Vapor Density (Air=1): 3.7

Vapor Pressure (mm Hg):

8 @ 20C (68F)

Evaporation Rate (BuAc=1): 0.7

MSDS

Page 165

ATSDR Medical Management Guidelines

Physical Properties

Description: Clear, colorless liquid
Warning properties: Adequate; sweet, aromatic odor at 1 ppm
Molecular weight: 106.2 daltons
Boiling point (760 mm Hg)*: 292ºF (144ºC), 269ºF (139ºC), and 281ºF (138ºC)
*Freezing point**: -13ºF (-25ºC), -54ºF (-48ºC), and 56ºF (13ºC)
*Specific gravity**: 0.88, 0.86, and 0.86 (water = 1)
*Vapor pressure**: 5, 6, and 6.5 mm Hg at 68ºF (20ºC)
Gas density: 3.8 (air = 1)
Water solubility: insoluble
Flammability*: 63ºF (17ºC), 81ºF (27ºC), 81ºF (27ºC)
Flammable range: 1.0% to 7.0% (concentration in air)
*ortho-, meta-, and para-xylene, respectively.

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HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name: XYLENE UN# (4 digits) 1307

DOT Hazard Class Category: 3 (flammable liquid) (1 to 9) Physical State: liquid (at 68 degrees F) Solid/Liquid/Gas

ERG Guide # 130 NFPA: H 2 F 3 R 0 S ___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/cm^3 ~~100~~ TWA 8 Hrs; STEL Short; ~~150~~ C Ceiling; ~~800~~ IDLH Danger	Toxicity? Little, Somewhat, Very
Corrosivity Closer to 1 or 14 = corrosive	Acid 1-6 Base 8-14 pH _n/a___	Corrosive? Not, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: ~~1%~~ ~~7%~~ 0% 50% 100% Flashpoint: ~~84~~ ~~90~~ 0°F 100°F 200°F I.T.: 867	Flammable? Non, Somewhat, Very
Vapor Density	Air = 1 (less rises, more sinks) V.D.: 3.7	Vapor? Float / Sink
Specific Gravity	Water = 1 (less floats, more sinks) S.G.: 0.86	Liquid? Float / Sink
Solubility	Soluble (swims) in: ☐ Water (W) ☐x Oil (O)	Soluble? Not Somewhat Very (W) Not Somewhat Very (O)
Vapor Pressure Higher = more vapor, Lower = less vapor	1 atm = 760 torr (mmHg) = 14.7 psia _____ Atm 8 mmHg e.g., At 17°C H_2O=14.5 mmHg, Diethyl Ether = 335.8 mmHg (Higher temperature= higher VP)	Vapor Production? Low, Medium, High
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No

PPE: Can your team handle a decontamination incident with provided PPE?
Yes / No
Can your team handle an internal spill incident with provided PPE?
Yes / No Not sure

Other Info of interest: CNS depressant, narcotic effect

What challenges are there to you handling this? Could be flammable in some circumstances

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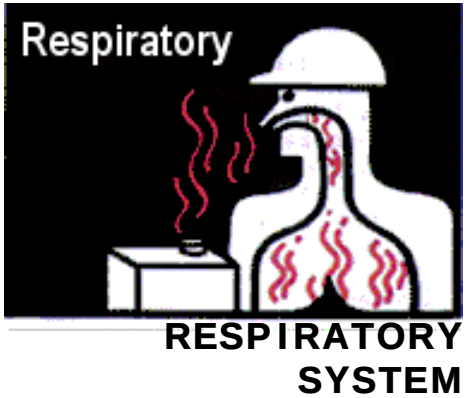
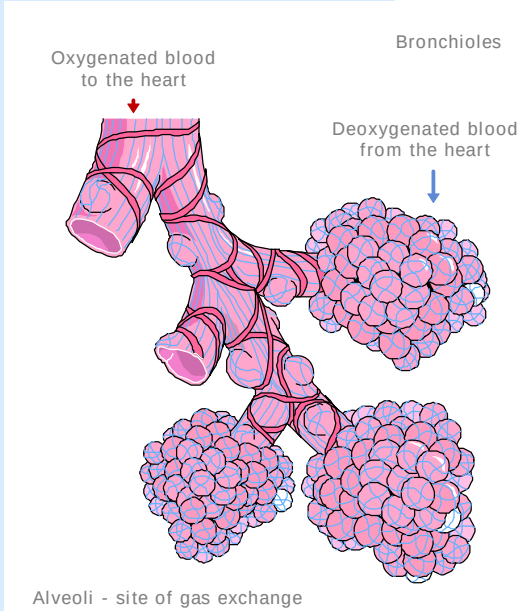
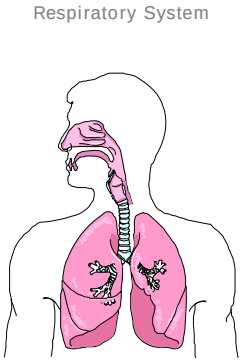
HARM-Risk Assessment Worksheet

Routes of Entry and Preventing Exposure



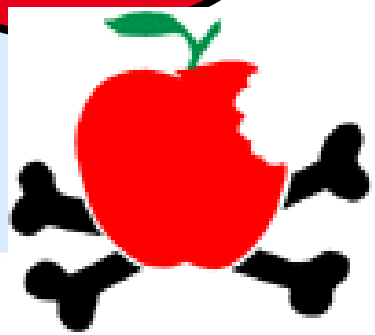


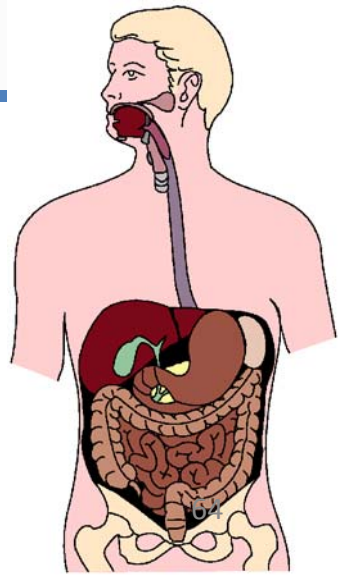


- Inhalation - you breath it
  - Most common route of entry
  - Isolate and deny entry
  - Wear air supplied respirator (SCBA or airline respirator)
  - If unsure of what it is or how much is there
  - Just stay away!

Routes of Entry and Preventing Exposure

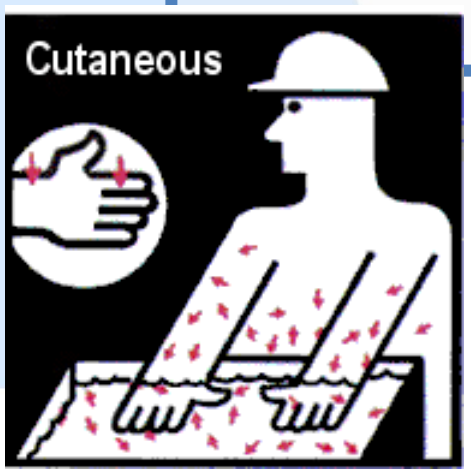
- Ingestion - you eat it
  - Isolate and deny entry
  - Don’t eat, drink or smoke
  - Natural reactions

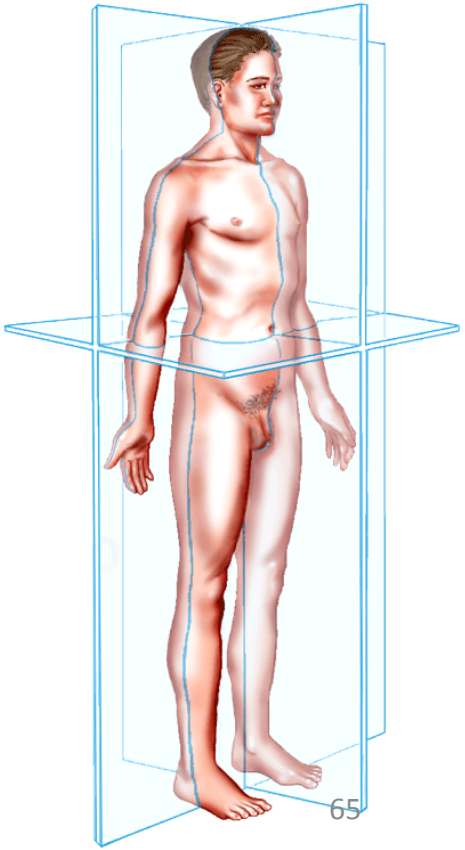




Routes of Entry and Preventing Exposure

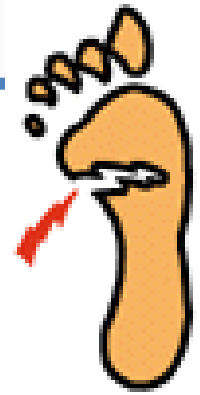
- Absorption - soaks through skin
  - Isolate and deny entry
  - Wear proper PPE
  - Decon any skin exposure





Routes of Entry and Preventing Exposure

- Injection - puncture wound
  - Isolate and deny entry
  - Wear proper PPE
  - How can this happen?



Remember!

- Many hazmats are odorless, colorless and tasteless!
- You may be exposed before you know it!
- Wear PPE
- Approach safely - UUU

Internal	External
Above / Upgrade	Up Hill
Different Ventilation	Up Wind
Out of flow	Up Stream

Acute vs. Chronic

- Exposure
  - Acute: short-term, limited, one time
  - Chronic: long-term, repeated, continuous
- Effects
  - Acute: may not show immediately
  - Chronic: not detectable for years. May differ from acute effects

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Chemical Characteristics and HARM Assessment

Activity
HARM Worksheet
Multiple Chemicals

Handout

Expected Job Functions

- At the Operations level, the Responder/Receiver does not need to be a rocket scientist but needs to know basic hazards and be familiar with the 201/202 and Site Safety Plan

Expected Job Functions

- At the On-Scene Commander level:
  - The implications of the HARM Worksheet will influence response considerations (“go- no go”)
  - Incident capabilities are determined by:
    - Personnel- number and level of training
    - Materiel- Response and Personal Protective Equipment
    - Ability to manage event
  - The development and use of the 201/202 and Site Safety Plan is an important component in the management and decision making process

HHMIC Course Organization

Excerpts from the HHMIC Course

- Who needs to take this course?
- The Objectives and Standards
- Who is in Charge?
- Decision Making
- Incident Command (ICS, HICS, NIMS)
- Response Considerations and Tools (Managing the Incident)
- Unified Command, Liaison, and PIO (Playing well with others)
- Safety Considerations (Response Equipment, PPE, and Training)
- Technical Information and Analysis
- Countermeasures
- Decon, Cleanup, Disposal, Funding, Legal

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In the HHMIC Class

- The class is formed into groups and each is given a scenario with supporting documents to complete the forms.
- At the end of the activities the groups are instructed to provide a briefing to the remainder of the class.

Using These Scenarios:

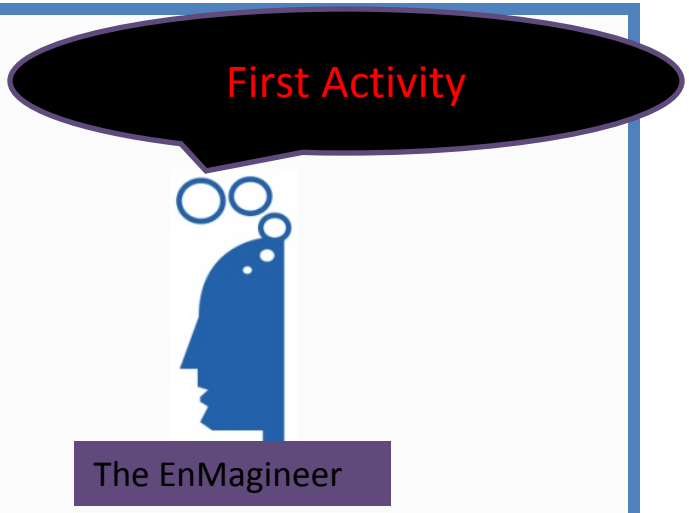
- Small spill in the hospital with no contaminated victims
- Large spill in the hospital with contaminated victims
- Small number of ambulatory contaminated victims access the hospital
- Large number (mass casualty) of contaminated and uncontaminated victims access the hospital, including non-ambulatory victims
- Agitated person accosts healthcare worker transporting biohazards

Scenario One For Illustration

- Small spill in the hospital with no contaminated victims
  - You are a laboratory manager
  - A newly hired lab technician rushes into your office highly agitated
  - The tech states that someone was pouring a liquid into a processor in the Pathology Lab and spilled a bunch of the stuff on the counter and floor
  - You ask what the product was and they respond that they did not know but there was a red diamond (square on point) on the container

What Do You Do?

- In the first:
  - 5 minutes
    - 15 minutes
- Different scenarios



Talk in your groups about those first 5 and 15 minutes
Appoint a spokesperson.
Be ready to discuss your actions with the rest of the class.

Immediate Considerations

- What do we know?
  - It could be more than you think

Considerations….

- Group evolution to discuss considerations for response

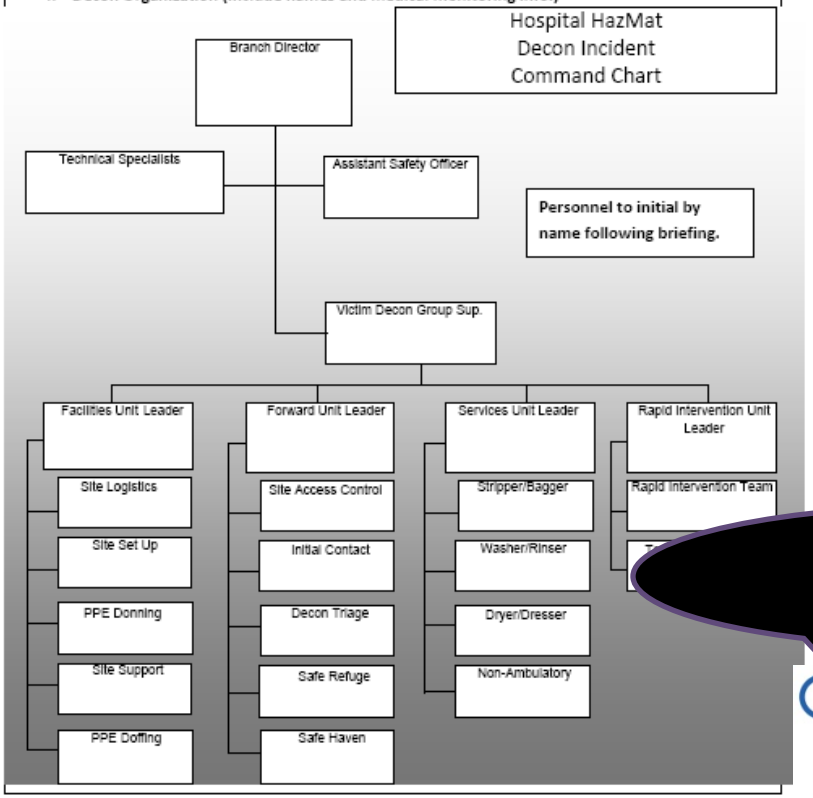
Hospital Hazardous Materials Site Safety and Control Plan -

(To be used with, and attached to, overall IAP and HARM Worksheet)

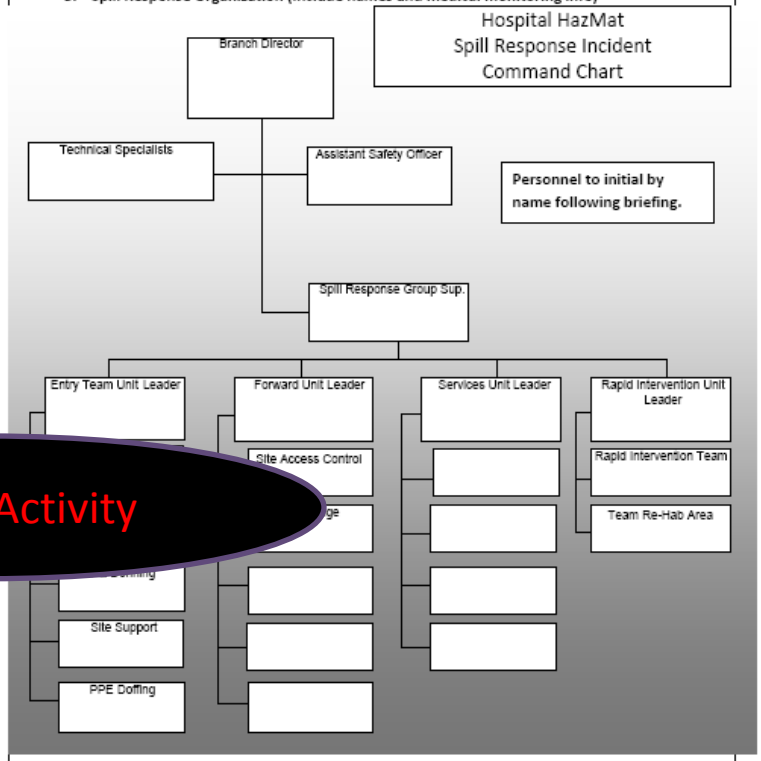
1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:

☐ Decon	☐ Spill Response	☐ Both

4. Decon Organization (Include names and medical monitoring info.)



5. Spill Response Organization (Include names and medical monitoring info)



6. Incident Commander	7. Operations Chief
8. Safety Officer	9. Liaison

10. Hazard Monitoring (type and readings)		
[illegible]en	Flammability (LEL)	Toxicity
[illegible]ological	Other	Other

1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:

Second Activity

Fill out the SSP with what you know

The EnMagineer

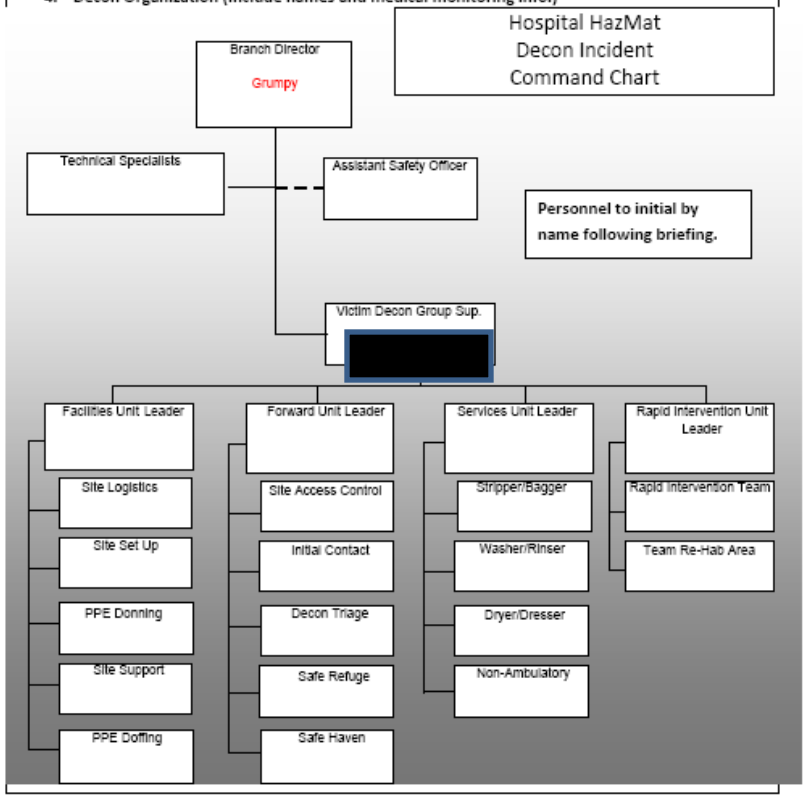
Hospital Hazardous Materials Site Safety and Control Plan -

(To be used with, and attached to, overall IAP and HARM Worksheet)

1. Incident Name: Pathology Lab Spill	2. Date Prepared: February 31, 2009	3. Operational Period: 3hours Time: 10:00 am

☐ Decon	X Spill Response	☐ Both

4. Decon Organization (Include names and medical monitoring info.)



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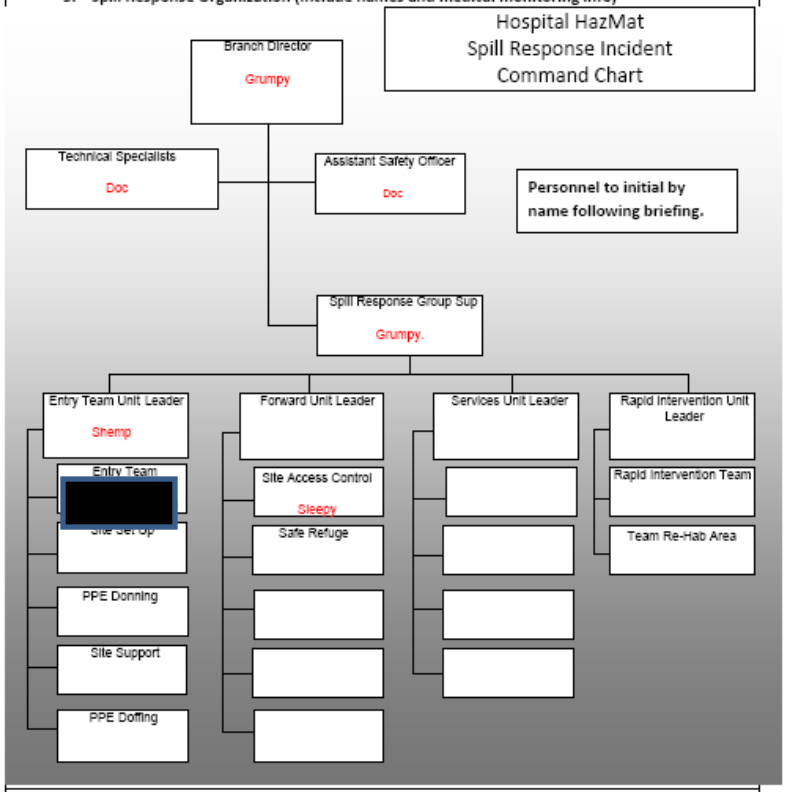
5. Spill Response Organization (Include names and medical monitoring info)



6. Incident Commander Nurse Ratchet (AOC)	7. Operations Nurse Ratchet White (AOC)
8. Safety Officer Doc	9. Liaison

10. Hazard Monitoring (type and readings)

Oxygen: [redacted]	Flammability (LEL) [redacted]	Toxicity [redacted]
Radiolog[redacted]	ther	Other

1. Incident Name: Pathology Lab Spill	2. Date Prepared: February 31, 2009	3. Operational Period: 3hours Time: 10:00 am

The Products Are Identified As:

1. Xylene
2. Sodium Hydroxide
3. Parathion
4. Acrylonitrile
5. Blood and Urine

EnMagine Inc

Hospital Hazardous Materials Site Safety and Control Plan -

(To be used with, and attached to, overall IAP and HARM Worksheet)

1. Incident Name:	2. Date Prepared:	3. Operational Period: Time:

☐ Decon	☐ Spill Response	☐ Both

4. Decon Organization (Include names and medical monitoring info.)

Hospital HazMat Decon Incident Command Chart

Branch Director

Technical Specialists

Assistant Safety Officer

Personnel to initial by name following briefing.

Victim Decon Group Sup.

- Facilities Unit Leader
  - Site Logistics
  - Site Set Up
  - PPE Donning
  - Site Support
  - PPE Doffing
- Forward Unit Leader
  - Site Access Control
  - Initial Contact
  - Decon Triage
  - Safe Refuge
  - Safe Haven
- Services Unit Leader
  - Stripper/Bagger
  - Washer/Rinser
  - Dryer/Dresser
  - Non-Ambulatory
- Rapid Intervention Unit Leader
  - Rapid Intervention Team

5. Spill Response Organization (Include names and medical monitoring info)

Hospital HazMat Spill Response Incident Command Chart

Branch Director

Technical Specialists

Assistant Safety Officer

Personnel to initial by name following briefing.

Spill Response Group Sup.

- Entry Team Unit Leader
  - PPE Donning
  - Site Support
  - PPE Doffing
- Forward Unit Leader
  - Control
  - Safe Refuge
- Services Unit Leader
- Rapid Intervention Unit Leader
  - Rapid Intervention Team
  - Team Re-Hab Area

6. Incident Commander	7. Operations Chief
8. Safety Officer	9. Liaison

10. Hazard Monitoring (type and readings)

Oxygen	Flammability (LEL)	Toxicity
Radiological	Other	Other

	2. Date Prepared:	3. Operational Period: Time:

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Third Activity

The EnMagineer

Fill out the SSP with what you know including 201/202

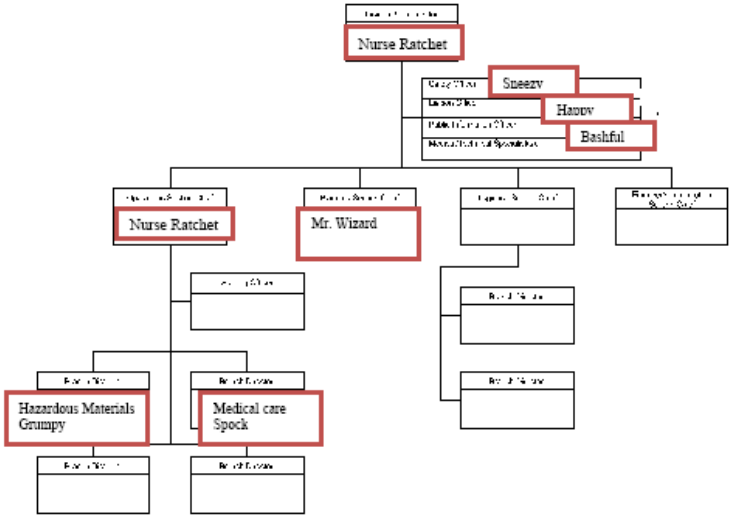
201/202 – INCIDENT BRIEFING/OBJECTIVES	OPERATIONAL PERIOD: 3 hours	
1. INCIDENT NAME Pathology Lab Spill	2. DATE OF BRIEFING 2/31/09	3. TIME OF BRIEFING 10:30am

4. EVENT HISTORY Technician was pouring a gallon jug of xylene into processor in Pathology Lab at ~9:50 am. Tech spilled entire contents of xylene on counter and floor

5. OBJECTIVES Isolate the scene and deny entry, keep people and ignition sources away from spill site, conduct action planning with fire department, EH&S, private contractor, and lab director, control HVAC. Determine next course of action.

6. CURRENT ACTION SUMMARY . Tech and one other person left the room, shut the doors, kept others away, notified hospital operator and lab director. No persons contaminated. Activated HICS. Administrator on Call Ratchet assumed Incident Command and Operations Chief. Appointed Sneezy (EH&S) as Incident Safety Officer and Doc as Assistant Safety Officer. Security Manager Sleepy maintaining Site Access Control. Contacted private clean up company (due at 11:15 am) and 911. HVAC shut down. Local Fire Department responded with one engine company on site at 10:15 am. In communication with HazMat team.

7. CURRENT/INCOMING ORGANIZATION



See Site Safety Plan

6. WEATHER / ENVIRONMENTAL IMPLICATIONS FOR PERIOD (include as appropriate: forecast, wind speed/direction, daylight)

Daytime, indoors

7. GENERAL SAFETY / STAFF MESSAGES TO BE GIVEN
(Examples: Personal Protective Equipment (PPE), Precautions, Case Definitions (refer to HICS 261 Incident Action Plan Safety Analysis)

Don't go near the stuff. Keep ignition sources away. Note any light headedness

9. NOTES (including accomplishments, issues, warnings/directives)

8. ATTACHMENTS (if needed: mark if attached)

☐ Organization Assignment List - HICS 203	☐ Medical Plan - HICS 206	☐ Traffic Plan
☐ Branch Assignment List - HICS 204	☐ Facility System Status Report – HICS 251	☐ Incident Map
☐ Incident Communications Plan - HICS 205	☐ Incident Action Plan Safety Analysis –HICS 261	X ☐ Other_Site Safety Plan

9. PREPARED BY (PLANNING SECTION CHIEF):

Mr. Wizard

7. PREPARED BY (NAME AND POSITION)	8. FACILITY NAME
Mr. Wizard PSC	St. Elsewhere

Purpose: Document initial response information and actions taken at startup **Origination:** Incident Commander
Copies to: Command Staff, Section Chiefs and Documentation Unit Leader

HICS 201
Page 3 of 3

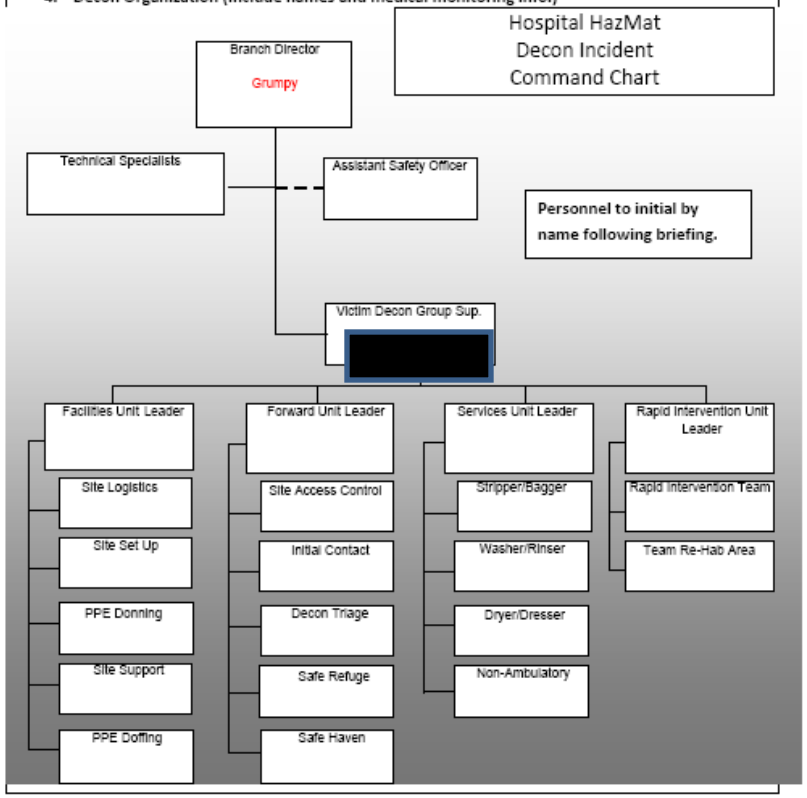
Hospital Hazardous Materials Site Safety and Control Plan -

(To be used with, and attached to, overall IAP and HARM Worksheet)

1. Incident Name: Pathology Lab Spill	2. Date Prepared: February 31, 2009	3. Operational Period: 3hours Time: 10:00 am

☐ Decon	X Spill Response	☐ Both

4. Decon Organization (Include names and medical monitoring info.)



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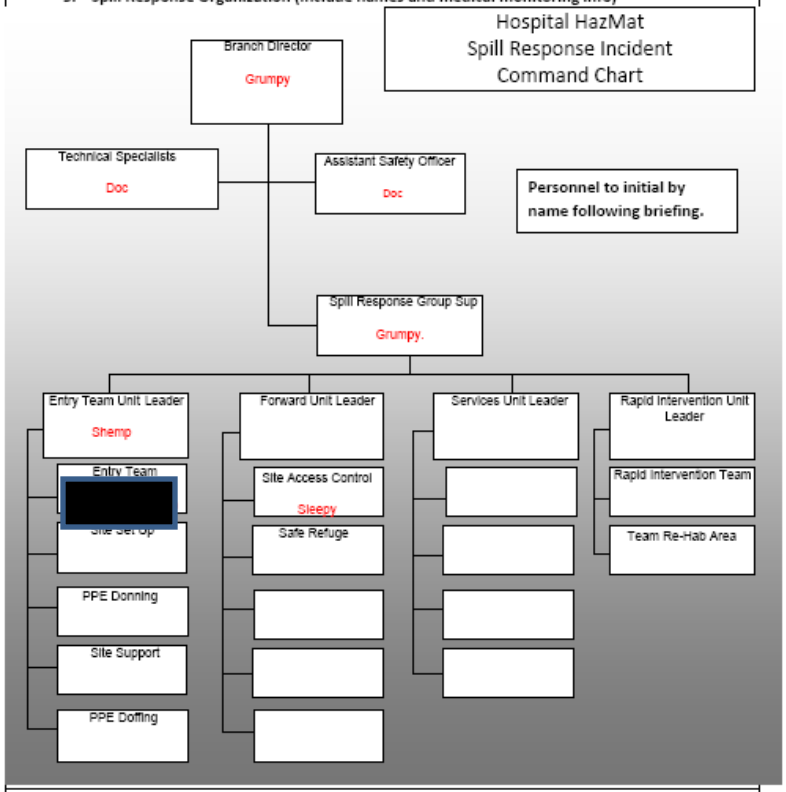
5. Spill Response Organization (Include names and medical monitoring info)



6. Incident Commander Nurse Ratchet (AOC)	7. Operations Nurse Ratchet White (AOC)
8. Safety Officer Doc	9. Liaison

10. Hazard Monitoring (type and readings)		
Oxygen: 20.7 (CGI)	Flammability (LEL) non-detect (CGI)	Toxicity 20 ppm (colorimetric)
Radiological non detect	Other	Other

1. Incident Name: Pathology Lab Spill	2. Date Prepared: February 31, 2009	3. Operational Period: 3hours Time: 10:00 am

HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name:_____ UN# (4 digits)_____

DOT Hazard Class Category:_____ (1 to 9) Physical State: _____ (at 68 degrees F) Solid/Liquid/Gas

ERG Guide #_____ NFPA: H___ F___ R___ S___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/m³ TWA 8 Hrs · STEL Short · C Ceiling · IDLH Danger	Toxicity? Little, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 0% 50% 100% Flashpoint: 0°F 100°F 200°F I.T.=_____ A.I.T. =_____ (paper = 451 °F)	Flammable? Non, Somewhat, Very
Specific Gravity	Water = 1 (less floats, more sinks) S.G.=____	Liquid? Float / Sink
Solubility	Soluble (swims) in: ☐ Water (W) ☐ Oil (O)	Soluble? Not, Somewhat, Very (W) Not, Somewhat, Very (O)
Vapor Density	Air = 1 (less rises, more sinks) V.D.=____	Vapor? Float / Sink
Vapor Pressure Higher = more vapor, Lower = less vapor	Water @ 17.5 mmHg (0.33 psi) = Low _____ Atm _____mmHg 1 atm is 760 mmHg (14.7 psi) = low B.P.=	Vapor Production? Low, Medium, High
Corrosivity Closer to 0 or 14 = corrosive	Acid 0-6 · Base 8-14 pH Value 0 2 7 12 14	Corrosive? Not, Somewhat, Very
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No
(Transferable from victim or scene to others?)

PPE: Can your team handle a victim decontamination incident with provided PPE?
Yes / No
Can your team handle an

Other Info of interest:

What challenges are there to you handli

Fill out the Harm Worksheet for the chemical in your scenario using information provided or any other way you can get it. (Cheating counts.)

Fourth Activity

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© HAZ MAT FOR HEALTHCARE
HARM-Risk Assessment Worksheet

HAZ MAT FOR HEALTHCARE

HARM / Risk Assessment Worksheet

Product Name: XYLENE UN# (4 digits) 1307

DOT Hazard Class Category: 3 (flammable liquid) (1 to 9) Physical State: liquid (at 68 degrees F) Solid/Liquid/Gas

ERG Guide # 130 NFPA: H 2 F 3 R 0 S ___ (0-4)

Hazard	Physical Description	Hazard Summary
Toxicity Lower #'s and/or Narrow Range = higher hazard	ppm or mg/cm^3 100 (TWA 8 Hrs) STEL Short 150 (C Ceiling) 900 (IDLH Danger)	Toxicity? Little, Somewhat, Very
Corrosivity Closer to 1 or 14 = corrosive	Acid 1-6 Base 8-14 pH _n/a___	Corrosive? Not, Somewhat, Very
Flammability Lower #'s and/or Wider Range = higher hazard Lower # = higher hazard	LEL / UEL: 1% 7% (0% 50% 100%) Flashpoint: 84- 90 (0°F 100°F 200°F) I.T.: 867	Flammable? Non, Somewhat, Very
Vapor Density	Air = 1 (less rises, more sinks) V.D.: 3.7	Vapor? Float / Sink
Specific Gravity	Water = 1 (less floats, more sinks) S.G.: 0.86	Liquid? Float / Sink
Solubility	Soluble (swims) in: ☐ Water (W) ☐x Oil (O)	Soluble? Not Somewhat Very (W) Not Somewhat Very (O)
Vapor Pressure Higher = more vapor, Lower = less vapor	1 atm = 760 torr (mmHg) = 14.7 psia _____ Atm 8 mmHg e.g., At 17°C H_2O=14.5 mmHg, Diethyl Ether = 335.6 mmHg (Higher temperature= higher VP)	Vapor Production? Low, Medium, High
Carcinogen	Yes / No	Cancer risk to staff? Yes / No

Secondary Contamination Risk: Yes / No

PPE: Can your team handle a decontamination incident with provided PPE?
Yes / No
Can your team handle an internal spill incident with provided PPE?
Yes / No Not sure

Other Info of interest: CNS depressant, narcotic effect

What challenges are there to you handling this? Could be flammable in some circumstances

© HAZ MAT FOR HEALTHCARE
HARM-Risk Assessment Worksheet

Bottom-line

- IC is responsible!

11. Communications (include evacuation alarms)			
Tactical Frequency	Decon Frequency	Spill Response Frequency	Command Frequency
o Hand Signals Reviewed			Whiteboard
Loud Hailer (bull horn)			Other

12. Type of Decon	☐ Precautionary/ Secondary/ Patient	☐ Emergency	☐ Technical
13. Type of Spill Response	☐ Offensive (Tech/Spec)	☐ Contain/ Control (Ops)	☐ SIN (Awareness)
14. Additional Hazards	☐ Heat/Cold Stress	☐ Confined Space	☐ Other

15. Victim Decon and/or Response Objectives, Guidelines, Work Practices, and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, slips/trips/falls, strains/sprains, chemical specific hazards and warning signs, tools needed, decon solutions if other than soap and tepid water)

16. Personal Protective Equipment (Liquid Splash Suit, Double gloves, Boots)					
Respiratory Protection	☐ None	☐ APR	☐ PAPR w/multigas cartidge	☐ SAR	☐ SCBA
Note if different than above:					
Initial Contact/ Decon Triage/ Safe Refuge			Dryer-Dresser/Safe Haven (may be Standard Precautions)		
Stripper-Bagger/Washer-Rinser/ Non-Ambulatory			Site Access		
Rapid Intervention			Entry Team		

17. Emergency Procedures	Victim Decon	Spill Response
Injury/Illness in Zones		
Fire/Explosion		
PPE Failure		
Emergency Evacuation Route and Congregation Area		
Other		

18. Victim Decon Site Map

19. Spill Response Site Map

Fifth Activity

The EnMagineer

Fill in the Remainder of the SSP and be prepared to provide an Operations and Safety Briefing using what you have developed.

riefing Completed: Time	21. By Whom:	
ame:	2. Date Prepared:	3. Operational Period: Time:

Page 4

11. Communications (include evacuation alarms)			
Tactical Frequency 5	Decon Frequency	Spill Response Frequency 7	Command Frequency 1
o Hand Signals Reviewed			Whiteboard
Loud Hailer (bull horn)			Other

12. Type of Decon	☐ Precautionary/ Secondary/ Patient	☐ Emergency	☐ Technical
13. Type of Spill Response	☐ Offensive (Tech/Spec)	☐ Contain/ Control (Ops)	X SIN (Awareness)
14. Additional Hazards	☐ Heat/Cold Stress	☐ Confined Space	☐ Other

15. Victim Decon and/or Response Objectives, Guidelines, Work Practices, and Special/Safety Instructions (include maximum time in suit based on heat stress guidelines, slips/trips/falls, strains/sprains, chemical specific hazards and warning signs, tools needed, decon solutions if other than soap and tepid water)

- Isolate the scene and deny entry.
- Prevent ignition by removing all possible ignition sources
- Contact private clean up company
- Ensure internal and external notifications have been completed
- No individuals to enter room
- Place hydrophilic absorbents by all doors
- Control HVAC
- Activate public information
- Have those present at incident receive medical clearance and document event
- Have fire extinguishers available

Safety Message: No one goes close. Wait until clean up company arrives. Stuff can burn and makes you loopy.
(Notify IC of disruption of laboratory activities. Keep Command Staff abreast of incident.)

16. Personal Protective Equipment (Liquid Splash Suit, Double gloves, Boots)					
Respiratory Protection	X None	☐ APR	☐ PAPR w/multigas cartidge	☐ SAR	☐ SCBA
Note if different than above:					
Initial Contact/ Decon Triage/ Safe Refuge			Dryer-Dresser/Safe Haven (may be Standard Precautions)		
Stripper-Bagger/Washer-Rinser/ Non-Ambulatory			Site Access		

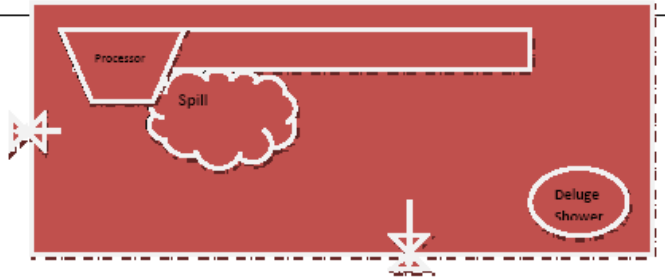
1. Incident Name:	2. Date Prepared:	3. Operational Period: 3hours
Pathology Lab Spill	February 31, 2009	Time: 10:00 am

Rapid Intervention	Entry Team

17. Emergency Procedures	Victim Decon	Spill Response
Injury/Illness in Zones		
Fire/Explosion		Run like hell
PPE Failure		
Emergency Evacuation Route and Congregation Area		That way to over there!
Other		

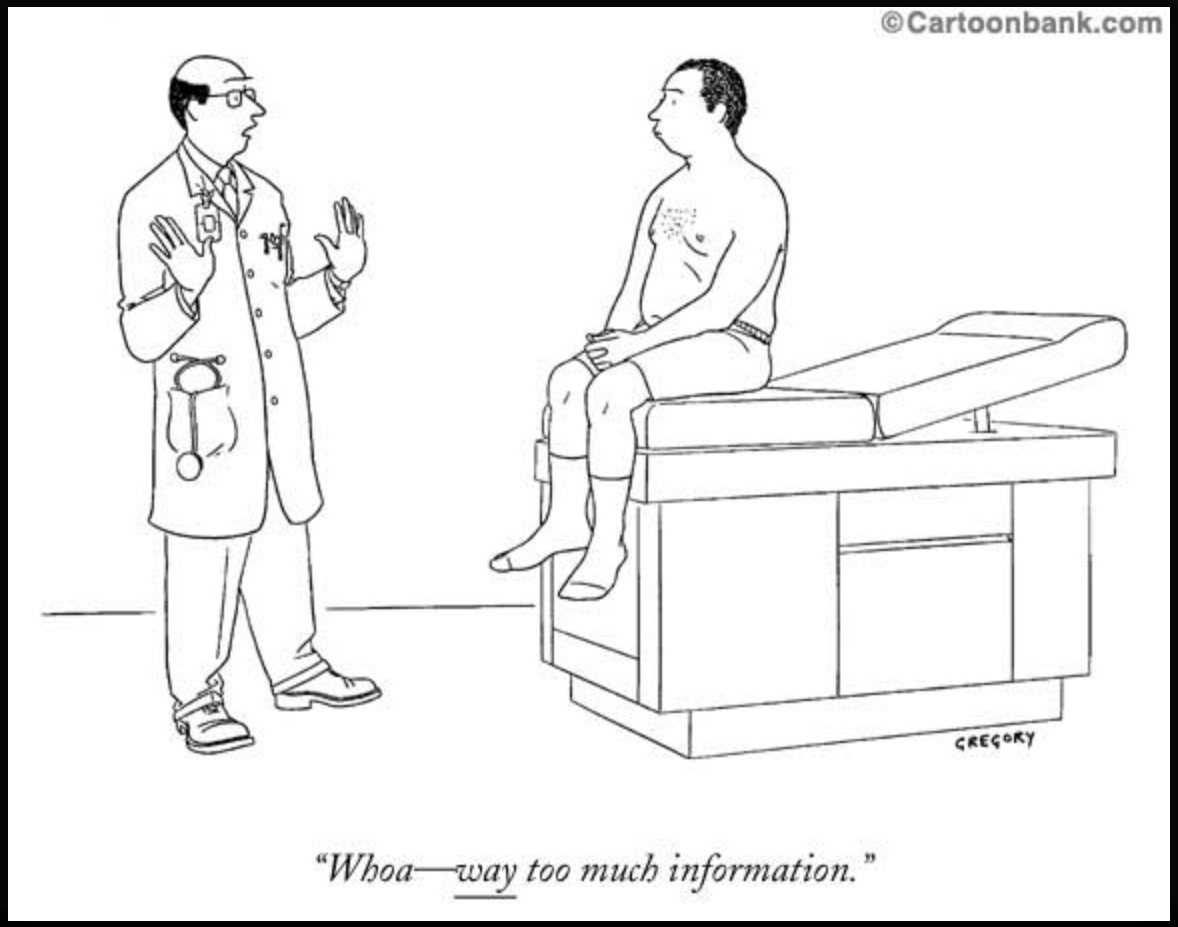
18. Victim Decon Site Map

19. Spill Response Site Map



20. Safety Briefing Completed: Time 10:30am	21. By Whom: Doc

1. Incident Name:	2. Date Prepared:	3. Operational Period: 3hours
Pathology Lab Spill	February 31, 2009	Time: 10:00 am



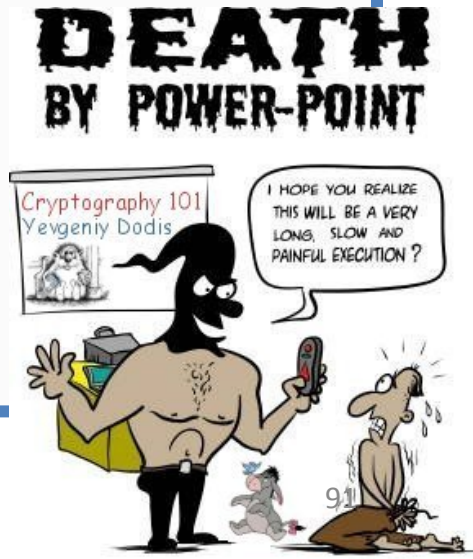
"Whoa—way too much information."

Way too much information!

Whoa!

Ergo

- One never has enough information to make good decisions, but decisions have to be made.
- What information one has should be managed as effectively as possible to assist in the decision making process
- These forms can be useful tools
- Thus, FORMS FOLLOW FUNCTION



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