

Translating HPV Information into Plain Language

Characterizing Chemicals in Commerce

Austin, TX

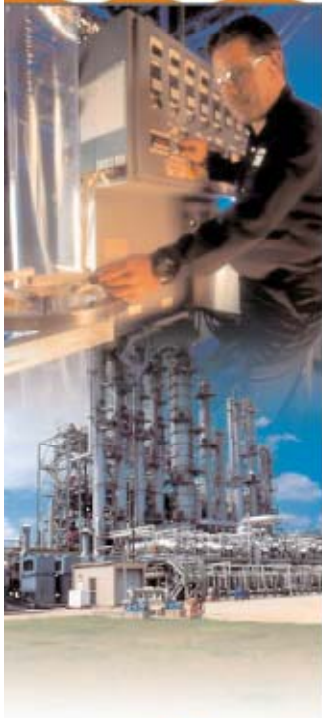
December, 12-14, 2006

"Serving the batch, custom and specialty chemical industry since 1921."



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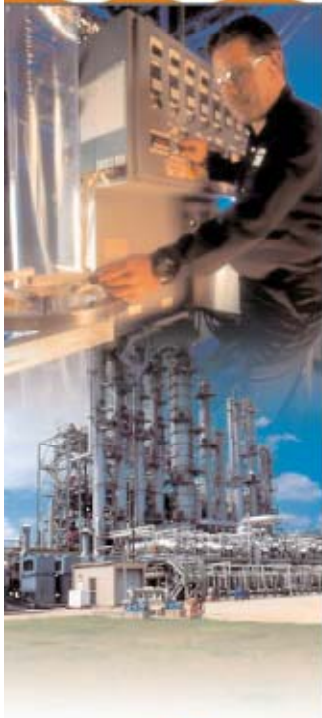


Voluntary HPV Program

- Provides a lot of data on a lot of chemicals
- Fails to explain what the data mean in the real world
- Need a way to help the public interpret and understand HPV data

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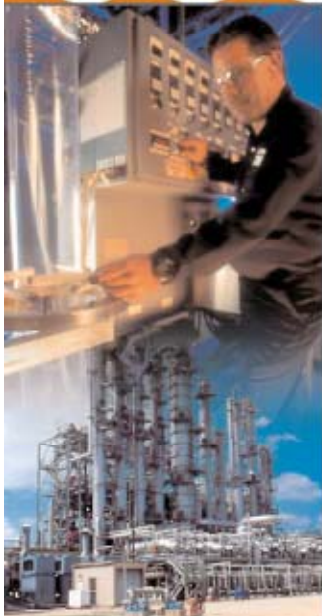


Back to basics:

Hazard (in the chemical industry): a measure describing the intrinsic properties or characteristics of a chemical

Hazard is a neutral term that can describe good and bad attributes.



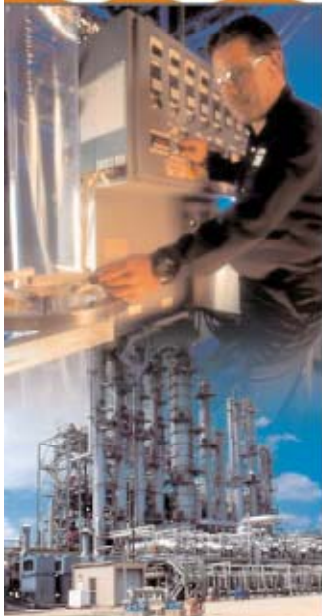


More basics...

Exposure: the various routes through which humans or the environment may come in contact with a chemical substance.

Concentration: the degree to which humans or the environment come into contact with these materials. Can be measured or modeled.

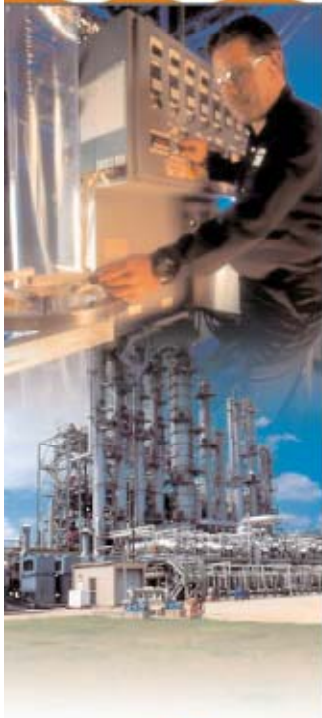
Dose: actual amount of substance absorbed into the body. Just because it's there, doesn't mean it affects your health



The HPV Program

The data gathered through the HPV program demonstrate the hazardous properties of a particular substance.

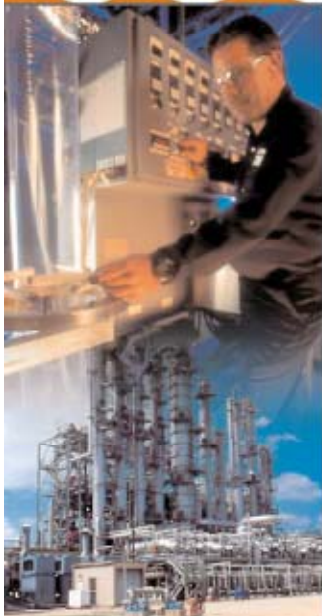
Exposure is not a formal part of the HPV Challenge; however, EPA posts exposure information when submitted



Risk = $f(\text{Hazard, Exposure})$

Risk is the term used by scientists when evaluating whether or not a chemical can cause harm.

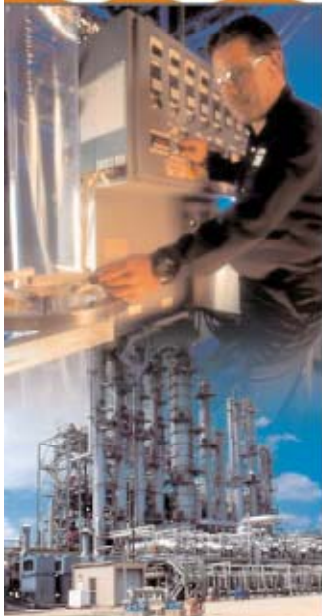
Risk is analogous to safety.



Consider this:

High Toxicity/Low Exposure

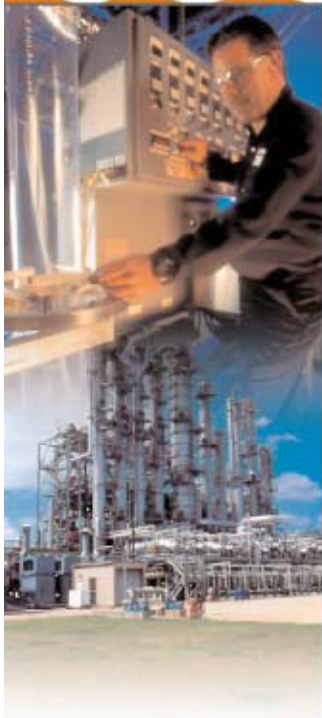
Phosgene is highly toxic and has been used as a chemical weapon. Because it is used in closed systems to make medicine, there is minimal opportunity for exposure. Is this high risk, low risk or medium risk? (Safety practitioners consider this to be intuitive.)



Another Example:

Low Hazard/High Exposure

Can you think of a situation where something we consider safe, like something we come into contact with often, can cause an adverse toxic effect?

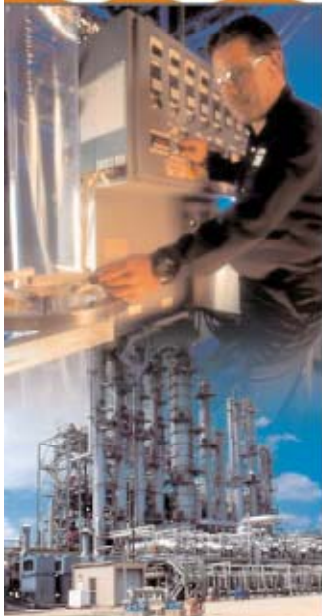


Possibilities

Some possibilities include sand, coal, penicillin, cosmopolitans, water, etc.

Risk depends on route of exposure and other factors.

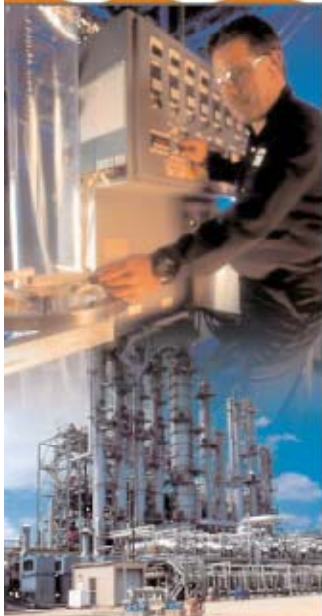
- Physical form of substance
- Oral, dermal or inhalation
- Allergies, sensitization, etc.
- Compounding effects on target organs



How about this?

Medium Hazard/Medium Exposure

Risk in this situation is not intuitive.
This is where quantitative risk
analysis comes into play.



Quantitative

Hazard Assessment

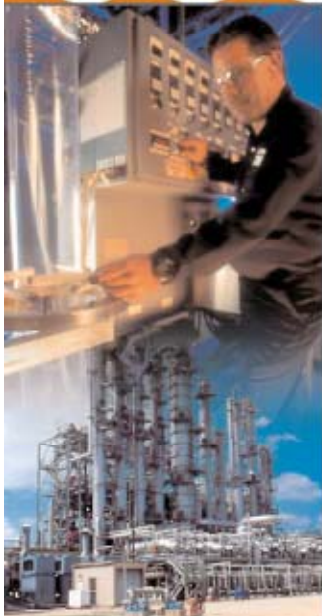
- quantify hazards via testing or modeling

Exposure Assessment

- quantify potential exposures via monitoring or modeling

Risk Assessment

- direct comparison of potential exposure concentrations to levels at which no adverse effects are seen



Qualitative

Often a mixture of quantitative and qualitative information.

Note: Hazard information is almost always quantitative, but exposure can be either

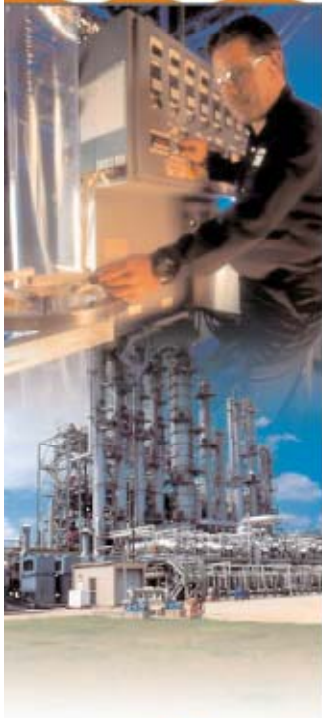
Why do this?

- Helps identify areas to measure in a tiered and targeted manner
- Qualitative descriptions are easier to digest

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Now you have characterized the risk...

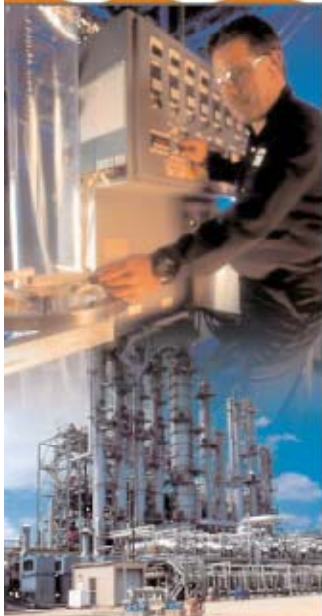


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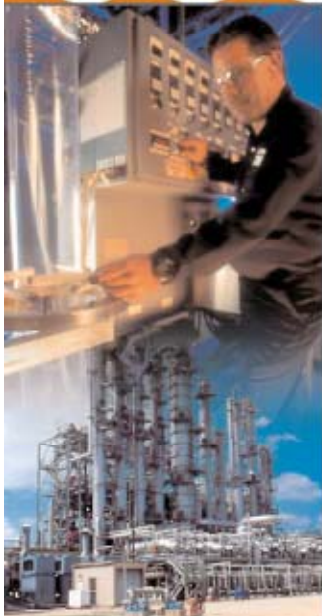


Communicating Risk

Misunderstanding can lead to fear.

There are various ways to describe risk:

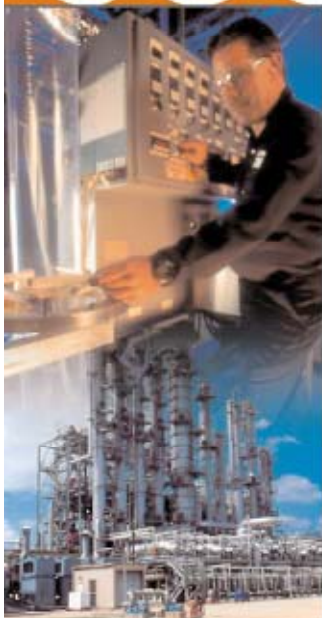
- 1) Technically – data & scientific terms
- 2) Statistically – probability (odds)
- 3) Qualitatively – simple descriptions
- 4) Comparatively – using common examples



How do you choose?

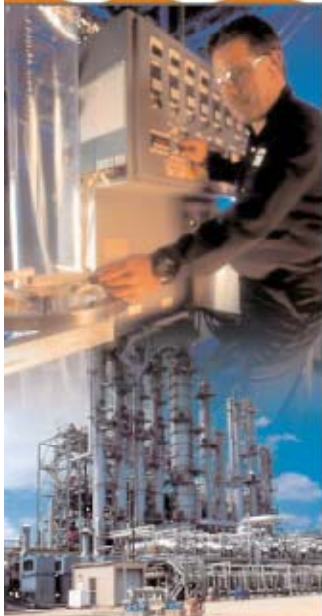
The type of audience will largely determine your method.

People use different words to say the same thing. If you want them to understand what you're saying, use their language.



Overarching Principles in Risk Communication

- Transparency
 - Consistency
 - Coverage
 - Limitations
- Context is everything
 - Keep related information together



Key Considerations When Explaining Chemicals

Why is it sold in commerce?

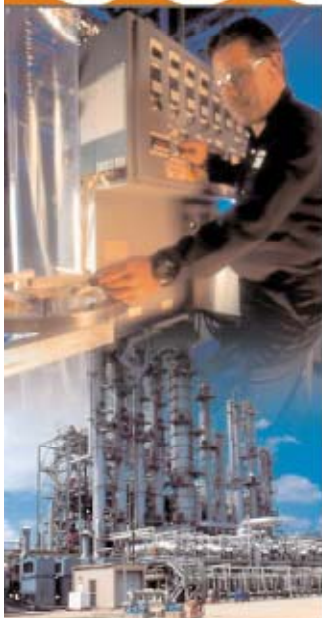
How is it used and by whom?

How often is it used and for how long?

What is done to protect people?

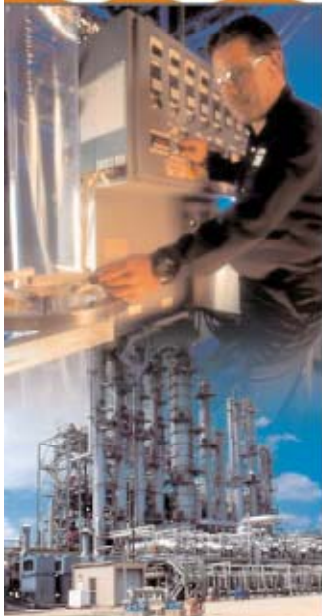
Where does it go when you're done?

What happens to it then?



When Communicating:

- Translate technical terms into everyday language
- Use data sparingly
- Give examples of units of measure
- Use examples relevant to the audience
- Avoid comparing statistical odds
- Take the time to explain methods and what the data represent
- Avoid far-reaching statements



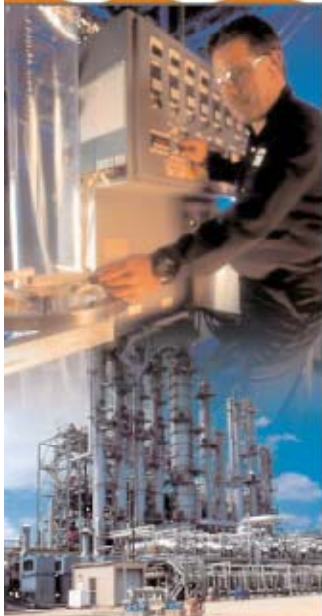
Some Things to Remember

The metric system is not familiar to many people in the U.S.

Rates & doses are difficult concepts that usually require simpler explanations.

Probably expressions are even more difficult.

Hazard & risk have negative connotations among the general public.



Conclusions

Qualitative information is meaningful to non-technical audiences.

Quantitative information can be translated into a more digestible format.

HPV data present an ideal opportunity to educate people about chemicals, but it must be used in conjunction with other information (i.e., exposure).