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## Transporting chemicals in personal vehicles

by Peter Nagle

Can I transport hazardous chemicals in my personal vehicle? This question is occasionally asked by researchers who need to transport small amounts of chemicals between campuses. The answer can vary depending on the chemicals being transported.

The US Department of Transportation (DOT) regulates the transportation of dangerous or hazardous goods in commerce. There are specific packaging, labeling and manifesting guidelines that must be followed when transporting hazardous materials in commerce over public roads. However the DOT recognizes that many businesses and organizations transport hazardous materials over public roads because they are needed for their daily operations. Examples of this include a landscaper transporting gasoline or welders transporting acetylene. Because of this, the DOT has adopted the Materials of Trade Exemption that relaxes the regulations in these instances as long as certain requirements are met.

Laboratories at UNE can utilize this exemption when transporting chemicals between campuses or to other institutions. Examples of chemicals that can be transported include acids, bases, flammable solvents and some infectious substances. If you use the Materials of Trade Exemption, be aware of the regulations that apply to it.

They include:

- General knowledge of Materials of Trade regulations
- Quantity limitations
- Packaging requirements
- Marking and labeling requirements

Some of the requirements that the Materials of Trade Exemption does not require include:

- Shipping papers
- Emergency response information
- Placarding
- Formal training or retention of training records

If you need to transport chemicals over public roads, please contact EHS beforehand. The regulations are specific and can vary depending on the chemical and the hazard level it poses in transport. For example most chemicals are allowed to be transported in containers of up to 8 gallons of liquid; however, some are not allowed in containers greater than 1 pint due to the greater hazard potential. Furthermore, there are some hazardous materials in which the exemption cannot be used. Also, there are aggregate amounts that cannot be exceeded when using the exemption. If you need to transport chemicals that exceed the allowable limit set in the exemption, other arrangements must be made for conveyance. EHS can assist you with any questions or issues you may have regarding the exemption.



It is widely recognized that the most effective method to eliminate or reduce adverse health and safety outcomes in the workplace is to eliminate hazards at the source, before applying other, less effective forms of protection. This industrial hygiene principle, known as the hierarchy of controls, has been well-studied, widely accepted and prominently incorporated into practice by businesses and industrial hygiene professionals throughout the world.

In chemical management, this hierarchy guides employers and workers to eliminate or reduce hazardous chemicals at the source by substituting them with safer alternatives. Unlike traditional engineering controls, administrative controls, work practice controls, or personal protective equipment, these strategies can completely eliminate exposure to hazardous chemicals, reduce the potential for chemical accidents, reduce disposal costs, and remove concerns regarding worker compliance and equipment maintenance.

Eliminating or reducing chemical hazards at the source, when coupled with a thoughtful, systematic evaluation of alternatives and the adoption of safer chemicals, materials, products and processes, can provide substantial benefits to both workers and businesses.

**Improve worker health and safety:** In the United States, it is estimated that chemicals are the cause of more than 190,000 illnesses and 50,000 deaths suffered annually by workers. These numbers are likely an underestimate due to long latency periods between chemical exposures and the onset of disease, unrecognized relationships between illnesses and chemicals, and other factors. Replacing known hazardous chemicals with safer alternatives could help reduce these numbers.

**Reduce costs:** Using hazardous chemicals in the workplace results in substantial direct, indirect, and liability costs to businesses and society. Step 4 of the toolkit outlines these in detail. Transitioning to safer alternatives can reduce these costs, as well as improve other important measures of success, such as performance efficiency, industry leadership and corporate stewardship. A 2008 study by the American Industrial Hygiene Association demonstrated that making process improvements designed to reduce or eliminate workers' exposures to hazardous chemicals resulted in greater savings and other benefits than implementing controls further down the hierarchy (i.e., engineering controls, administrative and work practice controls, and PPE).

**Reduce potential for regrettable substitutions:** Hazardous chemicals have the potential to be replaced with substitute chemicals or redesigned products or processes that may pose new and potentially greater hazards to workers. Implementing a process of informed substitution – which examines the hazard, performance, and cost of all options – can protect workers and identify replacements that are unlikely to cause more problems or be a target of future regulatory efforts.

**Achieve compliance with laws and regulations:** Although federal, state, and local legislation in the U.S. has been in place for many years to regulate chemicals, in recent years new international, federal, and state regulations are now requiring manufacturers, importers, and distributors to disclose more information about chemicals throughout the supply chain, avoid certain chemicals, and implement safer chemicals where feasible. Additional laws and regulations restricting hazardous chemical use or emissions are also on the horizon. The cost of not complying with existing laws or preparing for future efforts can be substantial. Taking a proactive approach by transitioning to safer alternatives can not only help businesses and organizations remain compliant with laws and regulations, but also remain competitive in a global marketplace.

**Create safer products for the environment:** Transitioning to safer chemicals in the workplace can also contribute to creating products that are less hazardous for the environment. This gives businesses and organizations the opportunity to brand their company with a new, green and innovative image.





## 20 Ways to Communicate Effectively With Your Team

by Valentine Belonwu via Small Business Trends

Contributed by Jessica Tyre



It is imperative in a leadership role that you communicate effectively. An age old aphorism goes, "It's not what you say, but how you say it." Communication is what separates a poor leader from an exceptional one. Having effective communication skills is the key to good leadership. When you communicate well with your team, it helps eliminate misunderstandings and can encourage a healthy and peaceful work environment. Efficient communication with your team will also let you get work done quickly and professionally. The moment you get the lines of communication open with your team, the process of carrying out tasks and projects will most likely go by smoothly. Plus you will be surprised how meeting targets will become a whole lot easier. Ways to communicate effectively in the workplace include:

- 1. Open meeting:** It is easier to communicate your passion and how you feel to your team via open meetings. In this kind of forum, they will not only hear what you are saying, they will also see and feel it. This approach still remains one of the best approaches to communicate effectively with a team.
- 2. Emails:** In official settings, communication via email remains potent. It will enable you to pass messages to members of your team without pulling them out of their work stations.
- 3. One on one:** Experts have been able to prove that some people understand better when you take them aside and talk to them on a one-on-one basis. Ensure that you maintain eye contact with them to enable the message to sink in.
- 4. Use presentations:** Some people grasp messages easily when pictures and sounds are involved. Using presentations like Microsoft Power Point to communicate with your team will give them the opportunity to refer back to it if they aren't clear about certain things.
- 5. Communication via training:** Your training should be tailored towards communicating certain information to your team members. Most employees take training serious, especially when it's part of their appraisal.
- 6. Display confidence and seriousness:** Ensure that you display confidence and seriousness to ensure that you will not be taken for granted. When your team members notice any uncertainty and lack of seriousness when you're communicating with them, they are likely to treat the information with disdain or disregard.
- 7. Use simple words:** The truth is that everybody cannot be on same page when it comes to vocabulary. Therefore, to be effective in your communications with your team members, use words that can be easily understood. When ambiguous words are used, you can be misunderstood and/or waste precious time having to explain yourself.
- 8. Use visuals:** Place visuals at strategic positions around the work stations of your team. They should not just hear the message, they should also see it. This gives room for better comprehension.
- 9. Listen to your team members:** Communication is intended to be a two way street. Don't just talk because you are the leader without listening to anyone else. Encourage them to open up so you can be well guided when communicating in the future with them. You have two ears and one mouth –so you must listen more than you speak.
- 10. Use body language:** Your body language will pass your message faster and better. Master the art of using body language when communicating with your team. Stand/sit up straight, use smiles, handshakes and eye contact.

**11. Act out your message:** Someone once said, "Tell me what you want me to do and I might forget it, but do it in front of me and I will never forget it." Acting out your message is a very potent way of communicating with your team. Let them see you do what you want them to do, and watch their excuses disappear.

**12. Use the appropriate tone of voice:** One word can mean a different thing when said in a different tone of voice. Make sure you use the appropriate tone of voice to communicate your message to your team so that you won't be misunderstood and discourage or demotivate members or cause them to shut down completely out of fear.

**13. Avoid unnecessary repetition:** If you want your team members to take you serious, never sound like a broken record and don't beat a dead horse. Tell your team members what you want them to know or do and ask them if they are clear about it. If they are not, only then do you repeat what you have said.

**14. Create a receptive atmosphere:** To effectively communicate with your team, you must create a receptive atmosphere. Avoid a tense environment at all costs because when you communicate in an overly intense manner, the message you are trying to share might not be well understood or retained.

**15. Be humorous:** Using friendly jokes when communicating with your team members will help pass your message along in a more relaxed way. This method of communication has been proven to be a highly effective way of dousing tension. When the atmosphere is unfriendly and intense, being humorous does the trick. If you must use jokes, please don't overdo it. Remember, you are not a stand-up comedian.

**16. Be articulate:** Communication is indeed a skill that must be learned by all, especially if you want to lead any group of people. Being articulate when you communicate to your team members makes it easier for them to understand your message.

**17. Avoid mumbling:** Your team members should be able to hear you clearly. When communicating with them, try as much as possible to speak clearly and not mumble words. When you mumble words or speak too quickly, you may assume that they are clear on the subject. But the truth is, they might not be. It also shows a lack of confidence on your part.

**18. Encourage feedback:** Don't just talk and walk away. Give room for feedback so that you can measure the effectiveness of your style of communication. It will also afford you the privilege of knowing if your message was well understood.

**19. Gesticulate:** Use your hands to demonstrate your message. Make hand motions and signals to establish the seriousness of your subject matter when communicating with your team members. This shows that you understand what you are trying to relay to them. Just don't let your body movement become too exaggerated and intense.

**20. Be appreciative:** After every communication session, via whatever means you have decided, always remember to thank your listeners for their time. It will cost you nothing and it's a simple courtesy.

Remember that the point of working as a team is to share ideas and boost productivity. When communication is hampered, it can sidetrack the entire effort. You must work hard at these communication tactics and create ground rules to keep everyone up to date, which helps avoid confusion and ensure the completion of the project with ease.



## Biosafety Levels (BSL) Contributed by Ronnie Souza

Research and teaching activities involving infectious agents requires prior approval from by the UNE Environmental Health & Safety Department (EHS) and Institutional Biosafety Committee (IBC) review process. Each laboratory space where biohazardous materials are used is assigned one of three internationally recognized biosafety levels, or BSL. The biosafety level is commensurate with the degree of risk posed by the biohazardous materials and activities carried out with those materials.

The IBC uses the biosafety levels recommended by the CDC and NIH as the usual standards of containment to be set for work with a given biohazardous material. Containment requirements are subject to modification by the IBC at its discretion, depending on the circumstances presented by a specific project.

### Biosafety Level 1 (BSL-1)

If you work in a lab that is designated a BSL-1, the microbes there are not known to consistently cause disease in healthy adults and present minimal potential hazard to laboratorians and the environment. An example of a microbe that is typically worked with at a BSL-1 is a nonpathogenic strain of *E. coli*.

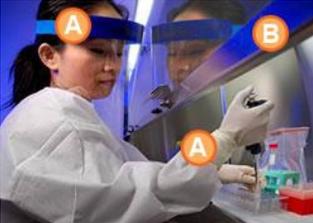
Specific considerations for a BSL-1 laboratory include the following:

Laboratory practices	Safety equipment	Facility construction
Standard microbiological practices are followed.	Personal protective equipment <b>B</b> , (lab coats, gloves, eye protection) are worn.	A sink must be available for handwashing.
Work can be performed on an open lab bench or table <b>A</b> .		The lab should have doors to separate the working space with the rest of the facility.

### Biosafety Level 2 (BSL-2)

BSL-2 builds upon BSL-1. If you work in a lab that is designated a BSL-2, the microbes there pose moderate hazards to laboratorians and the environment. The microbes are typically indigenous and associated with diseases of varying severity. An example of a microbe that is typically worked with at a BSL-2 laboratory is *Staphylococcus aureus*.

In addition to BSL-1 considerations, BSL-2 laboratories have the following containment requirements:

Laboratory practices	Safety equipment	Facility construction
Access to the laboratory is restricted when work is being conducted.	Appropriate personal protective equipment (PPE) <b>A</b> is worn, including lab coats and gloves. Eye protection and face shields can also be worn, as needed.	The laboratory has self-closing doors.
	<p>All procedures that can cause infection from aerosols or splashes are performed within a biological safety cabinet (BSC) <b>B</b>.</p> <p>An autoclave or an alternative method of decontamination is available for proper disposals.</p>	<p>A BSL-2 sign must be posted on the doors.</p> <p>A designated hand wash sink and eyewash are readily available.</p>

### Biosafety Level 3 (BSL-3)

BSL-3 builds upon the containment requirements of BSL-2. If you work in a lab that is designated BSL-3, the microbes there can be either indigenous or exotic, and they can cause serious or potentially lethal disease through respiratory transmission. Respiratory transmission is the inhalation route of exposure. One example of a microbe that is typically worked with in a BSL-3 laboratory is *Mycobacterium tuberculosis*, the bacteria that causes tuberculosis.

In addition to BSL-2 considerations, BSL-3 laboratories have the following containment requirements:

Laboratory practices	Safety equipment	Facility construction
Laboratorians are under medical surveillance and might receive immunizations for microbes they work with.	Appropriate PPE must be worn, and respirators might be required <b>A</b> .	A hands-free sink and eyewash are available near the exit.
Access to the laboratory is restricted and controlled at all times.	All work with microbes must be performed within an appropriate Biological Safety Cabinet <b>B</b> .	A BSL-3 sign must be posted on the doors.
	Exhaust air cannot be recirculated, and the laboratory must have sustained directional airflow by drawing air into the laboratory from clean areas towards potentially contaminated areas.	
	Entrance to the lab is through two sets of self-closing and locking doors <b>C</b> .	



**For more information on biosafety levels, please visit:**

<http://www.cdc.gov/training/QuickLearns/biosafety/>

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## UNE Chemical Sharing Listing

The UNE Chemical Sharing Program is a great way to reduce hazardous waste, reduce costs for your department, and have a positive environmental impact on campus. If you have any commonly used lab chemicals that you are thinking of disposing, please contact EHS so they can be listed in the next issues of EHS Lab Chatter as available for the UNE Chemical Sharing Program.

Chemicals currently available: None

# Have a great summer!

