Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block:\_\_\_\_\_\_\_\_\_\_

MSDS Scramble

Directions: As a group you will rotate between 6 stations in the classroom. At each station is an MSDS sheet for a chemical commonly found in the chemistry classroom. With your group, you will use the MSDS sheets to interpret information about each chemical. Do not switch stations until informed to do so!

Some key terms:

Flammability- the ability of a substance to catch on fire.

Solubility- the ability of a substance to be dissolved in another substance.

Acute- with regards to short term exposure

Chronic- with regards to long term exposure

**Station: Borax**

**Borax is a compound derived from the element Boron. It is commonly found in laundry detergents, cosmetics, and anti-fungal sprays. It is also found in glasses and ceramics and can be used as a fire retardant.**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
|  |  |  |  |  |  |  |

Give a brief description of what you would do in each of the following situations.

1. You were to get some of this chemical into your eyes:
2. You were to spill a small amount of this chemical:

What type of personal protection is recommended when using this product in a normal lab setting?

What is one liquid that this chemical is soluble in?

**Station: Water**

**You may not consider water a chemical, but it is! Water is a compound composed of hydrogen and oxygen. Not all chemicals are dangerous- and water is a perfect example of one that is necessary in order for us to live!**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
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Are there any acute OR chronic health effects associated with this chemical?

Why do you think there is no difference between the cleanup of a small spill vs large spill of this chemical?

It lists safety glasses as a recommendation when working with this chemical- what is one instance when you may want to wear them when using this chemical (even though it is just water)?

**Station: Salt**

**Another example of a chemical that is not harmful! You are most familiar with the form of salt that we use on food (yum, French fries!). Salt is used in many other ways, however- think about in the winter- what do they put on icy roads??**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
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In the clean-up directions for a small spill, what chemical does it tell you to put over the area after you have cleaned up the solid? Why do you think this is?

What storage is recommended for this chemical?

At what temperature will solid salt melt?

What is one chemical that salt is not soluble in?

**Station: Dibutyl phthalate**

**Dibutyl phthalate is the chemical used inside of glow sticks! It has also been known to be added to nail polishes or paints.**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
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If this chemical were to catch on fire and create a large fire, what method would you use to extinguish the fire?

If you wanted to boil this chemical, what temperature would you need to heat it to?

If you were chronically exposed to this chemical, what parts of the body would possibly be affected?

**Station: Baking Soda**

**If you have ever baked cookies you have probably used baking soda. This chemical is in most baked goods. It can also be used to put out small kitchen fires, or mixed with water and used to help indigestion!**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
|  |  |  |  |  |  |  |

What is the molecular weight of this chemical?

Will baking soda dissolve in alcohol?

What types of chemicals will baking soda **react** with and form carbon dioxide?

If you were to ingest too much baking soda all at once, what symptoms might you have?

**Station: Acetic Acid**

**Acetic acid is one of the two main components of vinegar (vinegar is basically a very small amount of acetic acid dissolved in water). There are a lot of complicated scientific uses of acetic acid, but another common use is as a solvent (helps dissolve materials). This is why vinegar is a great natural cleaning product!**

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| --- | --- | --- | --- | --- | --- | --- |
| Product Name (Chemical version) | Chemical Formula | Flammability | Stability | Physical State | Odor | Color |
|  |  |  |  |  |  |  |

Reading all of the health effects listed on the MSDS it sounds like acetic acid is pretty dangerous. If that is true, why don’t we get sick when we touch, smell, or eat vinegar?

If acetic acid were to catch on fire, what methods would you use to extinguish it?

What storage is recommended for this chemical?

What personal protection equipment is recommended?