

Reading: Mon. 9/8: 1.1-1.9, Wed. 9/10: 1.10-Conclusion

End of Chapter 1 Problems #1, 3, 4, 6-8, 12, 15-17, 19, 20, 30, 31, 35, 38, 42, 43, 48, 50

A) Do the following unit conversions. Conversion Constants are given in Appendix 1 of the text and Appendix 2 discusses scientific notation in more detail. If you find that you cannot do these unit conversions, please see the instructors for help. Unit conversions are a necessary skill for this class, and **all college students can do them** given a little help.

- 1) How many meters in 12.2 cm?
- 2) How many centimeters are there in 12.0 inches?
- 3) a) Convert 36,000 seconds to hours.
b) Convert 3.6×10^4 seconds to hours.
- 4) How many liters of air will fill a balloon with a volume of 250 cm^3 ?
- 5) Convert $1/2$ gallon to milliliters.
- 6) How many meters tall is a man of 5 ft 9 in?
- 7) How many grams in 12 kg?
- 8) How many grams are there in 3.00 lbs?
- 9) 23.0 oz of a substance is guaranteed to be 63% pure. What is the mass of impurities in this sample in grams? (16 oz = 1 lb)
- 10) Gasoline sells for 36 ¢/liter. What is the cost per gallon?
- 11) At another station the gas costs 99 ¢/gallon. How many liters can you buy for \$5.00?
- 12) The velocity of boats is often measured in knots (1 mile/hour = 0.869 knots). How fast in kilometers/day is a boat traveling 8 knots going?

B) Using the compressed MSD sheets on the back guess which of the three compounds you eat. Explain your choice.

Compressed MSDSs

substance	toxicity (oral rat LD 50)	Health Hazards / First Aid	Incompatibilities / Decomposition	Handling and Storage
L-(-)-Carvone Bp: 227 °C Fp: 88 °C	1640 mg/kg	Health: May be harmful by inhalation, ingestion or skin absorption. Irritant. First aid: Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of soap and water for at least 15 minutes. Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. wash contaminated clothing before reuse.	Stable under normal temperatures and pressures. Incompatibilities: ignition sources, excess heat, Oxidizing agents. Decomposition Products: Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.	Handling: Chemical safety goggles. Compatible chemical resistant gloves. OSHA/MSH approved respirator. Wash thoroughly after handling. Use only in a well ventilated area. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Storage: Keep away from heat, sparks, and flame. Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.
dodecyl sulfate, sodium salt mp: 204 °C	1288 mg/kg	Health: May be harmful by inhalation, ingestion or skin absorption. Causes eye skin and mucous membrane irritation. First aid: Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of soap and water for at least 15 minutes. Ingestion: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Inhalation: Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. wash contaminated clothing before reuse.	Stable under most conditions. Incompatibilities: ignition sources, temperatures above 50°C, Strong oxidizing agents, mineral acids. Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide.	Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Ground and bond containers when transferring material. Do not get on skin or in eyes. Avoid ingestion and inhalation. Storage: Keep away from heat, sparks, and flame. Keep away from heat and flame. Store in a cool, dry place. Store in a tightly closed container. Keep from contact with oxidizing materials.
polyamide mp: 223 °C	3200 mg/kg	Health: May be harmful by inhalation, ingestion or skin absorption. May cause eye and skin irritation. First aid: Flush eyes with plenty of water for at least 15 minutes. Flush skin with plenty of soap and water for at least 15 minutes. Inhalation: Remove from exposure to fresh air immediately. Wash contaminated clothing before reuse.	Stable under normal temperatures and pressures. Incompatibilities: Strong oxidizing agents, strong bases. Decomposition Products: Nitrogen oxides, carbon monoxide, carbon dioxide.	Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Avoid ingestion and inhalation. Storage: Keep container closed when not in use. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Abbreviations in MSDSs:

Bp: boiling point

mp: melting point

Fp: flash point

OSHA: Occupational Safety and Health Administration

LD 50: Lethal dose for 50% of the population