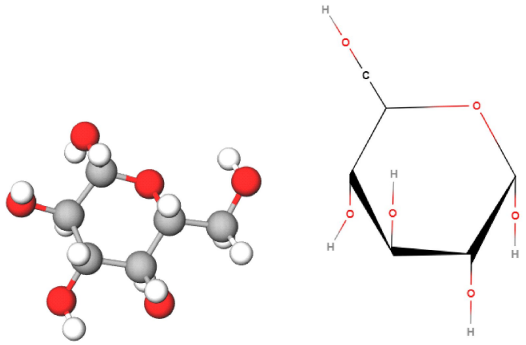
Molecules Around Us Information Form

- See additional information on pages 2-3.
- Download form and type in your answers.
- **Save the final document as a single .pdf file** and upload to D2L. Do not include the additional information pages as part of your document.

Name and student number: Melisa Khan, 501052529

Basic Information	Name	Glucose
	CAS Number	50-99-7
	Cost for 100 g	$47.45
	Synonym(s)	Dextrose
Physical Properties	Molecular Formula	C6H12O6
	Structural Formula See information pages	
	Melting Point (°C)	150-152 °C
	Boiling Point (°C)	527.1±50.0 °C
	Density (g cm^{-3})	1.54 g/cm3
	Refractive Index (n_D)	1.33469
Hazardous Properties	Unusual biological activity? (e.g., is the compound a carcinogen, teratogen, mutagen, lachrymator, etc.)	N/A, Not written anywhere that glucose is hazardous

	Unusual dangers? (e.g., is it extremely flammable? Pyrophoric? Easily detonated?	- May be irritating to the mucous membranes and upper respiratory tract - May be harmful by inhalation, ingestion, or skin absorption - May cause irritation to skin, eye, or respiratory system

References (where did this information come from)? Use another page if you need more space.

-(1) https://www.caymanchem.com/msdss/23733m.pdf (accessed Oct 2, 2020).

-D-(+)-Glucose G8270. (n.d.). Retrieved October 02, 2020, from https://www.sigmaaldrich.com/catalog/product/sigma/g8270?lang=en

- List of refractive indices. (2020, August 27). Retrieved October 02, 2020, from https://en.wikipedia.org/wiki/List_of_refractive_indices

- Bergwerf, H. (n.d.). MolView. Retrieved October 02, 2020, from https://molview.org/

Tips on Finding Different Types of Chemical Information

The guide below suggests a starting point online for each portion of the information form. All chemicals will be different: your information may be in the first place you look, or you may need to check several sources before you find what you need.

Basic information - CAS number, synonyms, cost

This information should be readily available in multiple sources and easily found online. Get the CAS number first, gather synonyms as you encounter them. A CAS Registry Number is assigned to a substance when it enters the CAS (Chemical Abstracts Service) REGISTRY database. Numbers are assigned in sequential order to unique, new substances identified by CAS scientists for inclusion in the database.

Start with: the Sigma-Aldrich catalog online. Sigma-Aldrich is a chemical retailer and should provide some basics, including cost. Sigma and Aldrich are companies with a history of printing useful reference books, and most of this information has been synthesized into their site. Like Amazon for books, they are trying to sell something and will provide as much helpful information as they can to potential customers. Look for physical properties and safety information in the safety data sheet (SDS) while you're there.

Physical Properties

Information, such as molecular formula, boiling point, etc., might be available in hundreds of places if the chemical is simple, common, or useful. You should try to verify anything you find in Wikipedia or an unfamiliar source by checking multiple sources. You'll also find that a lot of this information is copied and pasted throughout hundreds of websites. It's important to

understand that the availability of information will be different for every compound. Your colleague researching benzene might find every required physical property in the first source they check. Meanwhile, you are trying to find a complex or rare chemical, and will have to look through four sources to find five different pieces of data, and you still won't find everything you want. You can't count on the goodness of Wikipedia users to compile information like this for you. This is where professional reference sources come in handy. They are quick to search and contain a wealth of data.

Start with: CHEMnetBASE. This is an online compendium of notable chemistry reference books. Broad and reliable. The Ryerson Library also provides access to a number of chemistry related databases such as Material Safety Data Sheets (MSDS) and the Merck Index.

Tried several sources and still can't find a particular property? Consider if there may be a logical reason why your chemical might not have information on a property. Like, does it explode when you heat it? That might make it difficult to establish a boiling point! Are the crystals too small to allow chemists to find a refractive index?

Structural formula: No drawing by hand. Use a structure drawing program such as ChemDraw or ACD Chemsketch (free version) to build your molecule and insert the image into the appropriate space. Molview.org is an online structure building site that may also suit your needs. Learning to use these structure drawing programs now will benefit you later in your program!

Hazardous properties

Hazard and safety information is usually easy to find. It's in everyone's best interest to make this information widely available, and standardize its format for easy reading.

Look for: an MSDS (Material Safety Data Sheet). Sigma-Aldrich might have one.

References

See table on pages 292-293 of ACS style guide (https://pubs.acs.org/doi/pdf/10.1021/bk-2006-STYG.ch014) for information on how to properly your references.