

1.3: A SPECIFIC SDS

Let us use all the information we have accumulated in the last sub-chapter, and use a real case example to find the relevant information we need. We will analyze the SDS of toluene, as a specific example.

We will focus on category 2 in the SDS, which is a good starting point for most SDS. This category contains hazard information. Category 2.1 contains the most important summary of the hazards and safety information associated for that chemical. For toluene, we have the following seven items:

1. **Flammable liquids (Category 2), H225**
2. **Skin irritation (Category 2), H315**
3. **Reproductive toxicity (Category 2), H361**
4. **Specific target organ toxicity -single exposure (Category 3), Central nervous system, H336**
5. **Specific target organ toxicity -repeated exposure (Category 2), H373**
6. **Aspiration hazard (Category 1), H304**
7. **Acute aquatic toxicity (Category 2), H401**

Each of these items should go in the lab notebook, if toluene is used for that experiment. As a deeper analysis, we will also go through each of these seven items, and evaluate the relative hazard. As outlined in the previous sub-chapter, our aim is to analyze each item and think carefully about measures that we should take to avoid exposure and risk.

Items 1 and 2 (flammable liquid and skin irritation) are, as we have seen, typical for most organic chemicals and we follow good laboratory hygiene and work in a well ventilated fume-hood. We also wear goggles and a lab coat at all times. Item three, which deals with reproductive toxicity,³ is worth making a note of. That is an effect that we absolutely should be aware of when dealing with the chemical. Items 4 and 5 are also noteworthy. These two items say that the chemical has target toxicity both for single and repeated exposure. The first is more serious than the latter, because only one exposure of the chemical can have central nervous system toxicity. We therefore want to do everything we can to avoid contact with the chemicals. A further analysis shows that nitrile gloves offer fair protection, so we want to make sure to wear these gloves whenever handling toluene.⁴ Item 6 is common for most organic chemicals, as inhalation of most organic chemicals is damaging. Working in the fume-hood is one measure to limit inhalation. Item 7 is worth noting as well, and following proper chemical handling,⁵ we make sure to never pour chemicals down the drain.

The above analysis might be deeper than you are used to, but it is very important for your long-term health and well-being. One of the main goals of a chemistry lab course is to learn about safety in that environment.

³ Reproductive toxicity means a substance that in some way interferes with reproduction. It includes effects on sexual function, and fertility in both males and females, as well as developmental toxicity in the offspring.

⁴ Chapter 3 covers the use of gloves

⁵ Chapter 3 covers safe handling of chemicals

In conclusion, several safety-related issues are important for preparation.

1. **Find and read SDS for all chemicals used**
2. **Find the main safety and hazard statements for each chemical used**
3. **Include the main safety and hazard statements in your note book**

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