

Nickel

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It was a bad day for Mia, she had just broken her glasses frame and had to get a new one. She had left her glasses on the bench to play basketball, when the ball knocked them over and someone stepped on them. Even in the chaos, she could hear the *crunch* of the glass and metal underneath their feet.

When she arrived at home, she ran right up to her room. Rolling around on her bed, Mia was bored out of her mind.

Suddenly, her mom yelled from downstairs, "Mia! Your friend's here!" She sped downstairs.

"ABIGAIL!" squealed Mia.

Abigail laughed, "Hey Mia. Are you okay? Practice today seemed rough, your glasses broke right?" Mia beamed as she was leading Abigail to her room.

She closed her door before speaking, "I could be better, but my parents bought me new glasses! So that's a plus."

Abigail nodded. "I bet they look great, where are they?" Mia skipped over to her vanity and picked them up.

Abigail snatched them away and her mouth dropped, "I absolutely love the frames."

"It's okay, it's just a frame."

Abigail shook her head, "It's not just a frame. There's so many things in it, for example, nickel."

Mia sighed, her friend was in the mood for a geography lesson.

"Back in the day.."

"Hold up, I can handle geography, but history is a different matter."

"Let me finish, I promise it's not a history lesson. Back in the 1880s Canada first discovered the ore called nickel in Sudbury, Ontario. Later on, they found it in other provinces such as Manitoba, Quebec, Newfoundland and Labrador. The largest nickel deposits are the Thompson Nickel Belt in Manitoba, Ontario's Sudbury Basin and the Ungava Peninsula in Quebec. They began mining and processing it in the 1890s. Now, Canada is one of the world's top five nickel contributors."

Mia was a bit shocked at her friend's sudden intellect.

"The original nickel ore is a silvery colour with hints of white. It's a shiny metal with a slight golden tinge. Pretty nice if you ask me. It's also able to be combined with other metals to make stainless steel and other alloys."

"So they just mine it out of a mountain?"

This made Abigail think, "Kind of? They have lots of methods. There is conventional roasting, the reduction processes, and open pit mines, which is basically tunneling into the earth

to get to the ores. But you can't forget the part where you separate the ore from the rocks or other kinds of ores."

"Ohhh so they have to process it?" She never really thought of what went into her glasses frame.

"Yup. There are three ways, pyrometallurgical, electrorefining, and mond process."

Other terms Mia didn't understand, "Pyrohufhwefwhat?"

"Don't worry about it I had a hard time the first time as well. Basically...are you ready?"

Mia was a bit unsure, but there was nothing to lose, "Ready as I'll ever be."

Abigail took a deep breath, "Basically, pyrometallurgical is the method of separating other ores from nickel after they mine it. It's done by adding hydrogen sulfide and putting it into the nickel with liquid or solvent extraction."

"That sounds very complicated," she took another look at her frames, so much work for such a small product.

Her *intelligent* friend laughed, "And that's just the beginning. Nickel is everywhere in our life." She motioned towards Mia's frames, "Like your frames for example."

"And the coin."

"As well as belt buckles, cellphones, coins, bracelets, cello strings, dental devices, earrings, keys, hairpins, neckla-" Abigail couldn't finish the sentence without gasping for air.

Mia rushed to offer her water, "I get it, don't worry."

The girls heard a few knocks on the door. When they opened it, it was Mia's mother holding a plate with some delicious looking snacks.

They happily accepted, Abigail especially.

"Do you get it now? Nickel is crucial to our lives."

"I suppose, I never really thought of it that way."

"It's practically the most important metal to stainless steel companies. Stainless steel is made with nickel. So that means if we didn't have nickel, you wouldn't have the pots and pans that would make your food."

Mia almost dropped her food, "N-no food?"

"Nope. And no cars either, so walking is your only option. Basically live a really boring and inefficient life."

She looked back and forth from her food to Abigail. Then she slowly put down her pizza and reached out for her frames, "I see them in a new light now."

"That's good, nickel is non-renewable so make sure to use it sustainably."

"Okay okay, I'll try not to break them again. Still, it's surprising how you know so much about nickel."

"Just call me the nickel lady."

Reference List

- AsianMetal. (2020, February 4). *Nickel:Smelting*. Retrieved from <https://www.aoa.org/Documents/optometric-staff/Articles/Frame-Materials.pdf>
- AthenaAllergy. (2019, October 29). *39 Common Items that Contain Nickel*. Retrieved from <https://nonickel.com/pages/items-that-commonly-contain-nickel>
- Government of Canada. (2019, November 27). *Nickel facts*. Retrieved from <https://www.nrcan.gc.ca/our-natural-resources/minerals-mining/minerals-metals-facts/nickel-facts/20519>
- Great Mining. (2020, February 4). *Nickel*. Retrieved from <https://www.greatmining.com/nickel.html>
- Kay, A. (2018, May 2). *Nickel Mines in Canada: An Overview*. Retrieved from <https://investingnews.com/daily/resource-investing/base-metals-investing/nickel-investing/nickel-mining-in-canada/>
- Morgan, E. (2018, May). *Eyeglass Frame Materials*. Retrieved from https://www.allaboutvision.com/eyeglasses/eyeglass_frame_materials.htm
- Wise, E. M., & Taylor, J. C. (2013, September 5). *Extraction and refining*. Retrieved from <https://www.britannica.com/technology/nickel-processing/Extraction-and-refining>