

**KNOWLEDGE  
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FUTURE**

# Human Health Fact Sheet 6

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LOW NICKEL DIET FOR NICKEL-  
ALLERGIC INDIVIDUALS  
SUSCEPTIBLE TO REACTIONS FROM  
ORAL NICKEL EXPOSURE

*ANNEX I - Nickel amounts of  
common foods*

December 2023

A small portion of the nickel allergic population are susceptible to allergic reactions from oral exposure to nickel substances, most commonly through food and beverages. These individuals may benefit from a low nickel diet, which should only be undertaken when advised by a dermatologist or other qualified medical doctor.

This fact sheet discusses some of the existing low nickel diets made available by clinics, dermatologists, medical doctors, and on the internet. This fact sheet also briefly explains the origins of nickel in food and examines some of the other potential sources of nickel. In particular, sources that are sometimes highlighted by dermatologists and medical doctors but for which data does not conclusively support substantial contribution to nickel intake (e.g., bottled water versus tap water, canned foods, and the use of stainless steel cookware) are addressed. Recommendations are made with regard to these sources.

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**Many delicious foods are included in a low nickel diet**



[Annex I](#) provides an extensive, non-exhaustive list of foodstuffs that are categorized as high, medium, and low in nickel and expressed in terms of micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) of food. In order to assist users with compliance with a low nickel diet, each foodstuff within the relevant category is also listed with its nickel content in terms of micrograms per serving ( $\mu\text{g}/\text{serving}$ ).

This material has been prepared for the general information of the reader and it is not intended to be medical or technical advice for specific situations. The publication is based on current scientific knowledge and while believed to be technically correct, it should not be used or relied upon in specific cases without first securing professional advice. Nickel Institute, its members, staff, and consultants do not represent or warrant its suitability for any general or specific use and assume no liability or responsibility of any kind in connection with the information herein.

# ANNEX I

## Nickel amounts of common foods

This Annex should be used in the context of the NiPERA Human Health Fact Sheet 6 *Low Nickel Diet For Nickel-Allergic Individuals Susceptible To Reactions From Oral Nickel Exposure* and is not meant to be a stand-alone document.

The footnotes to the annex table are listed below, and source details are located under References (Section 10) of the fact sheet.

1. **Low** = less than 100 µg/kg; **Medium** = 100–500 µg/kg; **High** = more than 500 µg/kg. Values are for content per kg of food. Nickel content per serving is shown in columns 3-4.
2. EFSA range values were the P25 LB and P95 UB values from EFSA Annex C (Table C.6). INNIBEL range values were calculated using the minimum and maximum values provided in the INNIBEL report. EFSA and INNIBEL range values were adjusted from µg/kg food to µg/g serving size using the Rebelytics serving sizes for each food,<sup>(14)</sup> derived from the Health Canada “Table of Reference Amounts for Food” as the basis for serving sizes.<sup>(31)</sup>
3. EFSA mean values were calculated using the average values of the mean LB and the mean UB from the EFSA document, Annex C (Table C.6). Rebelytics mean values were calculated for each food using the mean score provided for each entry and finding the median value (e.g., mean score of 2 = 10-20 µg/serving, median of 15 µg/serving used as mean in table above). INNIBEL mean values were calculated using the mean values cited in the INNIBEL report. EFSA and INNIBEL mean values were adjusted from µg/kg food to µg/g serving size using the Rebelytics serving sizes for each food,<sup>(14)</sup> derived from the Health Canada “Table of Reference Amounts for Food” as the basis for serving sizes.<sup>(31)</sup>
4. EFSA Panel on Contaminants in the Food Chain (CONTAM), data of 26 European countries (EFSA, Annex C, 2020).<sup>(20)</sup>
5. INNIBEL Final Scientific Report; data for Belgian foodstuffs (June 2019).<sup>(30)</sup>
6. Rebelytics values taken from global score sheet by Rebelytics Low-Nickel Global Diet Scoring System (July 2023).<sup>(14)</sup>

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
<b>BEVERAGE/DRINKS</b>				
Alcoholic spirits (brandy, rum, vodka, whiskey)	Low	0 – 2.2 µg/30 g	0.3 µg/30 g	EFSA <sup>(20)</sup> European Countries
Beer (Pilsner)	Low	0.5 – 2.7 µg/333 g	1.5 µg/333 g	INNIBEL <sup>(30)</sup> Belgium
Beer (strong, regular, light)	Low	0 – 23 µg/333 g	4.4 µg/333 g	EFSA <sup>(20)</sup> European Countries
Chocolate milk	Low	1 – 50 µg/250 g	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Coconut water	Low	0 – 170 µg/375 g	25 µg/375 g	Rebelytics <sup>(14)</sup> Global
Coffee (latte, au lait)	Low	1 – 9.5 µg/250 g	3.6 µg/250 g	EFSA <sup>(20)</sup> European Countries
Soft drinks (cola, caffeinated, flavored, fruity)	Low	0 – 67.5 µg/375 g	9.4 µg/375 g	EFSA <sup>(20)</sup> European Countries
Tea (iced with and without lemon)	Low	3.3 – 14.5 µg/250 g	9 µg/250 g	INNIBEL <sup>(30)</sup> Belgium
Tea (infusion)	Low	9.4 – 77.6 µg/375 g	25.1 µg/375 g	INNIBEL <sup>(30)</sup> Belgium
Water (bottled)	Low	0 – 1.9 µg/375 g	2.6 µg/375 g	EFSA <sup>(20)</sup> European Countries
Water (drinking/tap)	Low	0 – 1.9 µg/375 g	0.4 µg/375 g	EFSA <sup>(20)</sup> European Countries
Wine (all types)	Low	0 – 18.8 µg/188 g	6.4 µg/188 g	EFSA <sup>(20)</sup> European Countries
Chocolate milkshake	Medium	10 – 310 µg/250 g	45 µg/250 g	Rebelytics <sup>(14)</sup> Global
Tea (green, domestic protocol)	Medium	28 – 63 µg/250 g	48.5 µg/250 g	INNIBEL <sup>(30)</sup> Belgium
Liqueur	High	0 – 6.6 µg/30 g	3.3 µg/30 g	EFSA <sup>(20)</sup> European Countries
<b>CEREALS AND GRAINS</b>				
Breakfast cereals, porridge	Low	0 – 20 µg/140 g	6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Noodles (rice)	Low	0 – 18 µg/140 g	7.6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Bagel	Low	1 – 20 µg/85 g	5 µg/85 g	Rebelytics <sup>(14)</sup> Global
Barley (cooked)	Low	1 – 30 µg/140 g	5 µg/140 g	Rebelytics <sup>(14)</sup> Global
Bread (white)	Low	1 – 20 µg/75 g	5 µg/75 g	Rebelytics <sup>(14)</sup> Global
English muffins	Low	–	5 µg/55 g	Rebelytics <sup>(14)</sup> Global
Noodles (wheat flour with and without eggs)	Low	0 – 20 µg /140 g	5 µg/140 g	EFSA <sup>(20)</sup> European Countries
Rice (white, cooked)	Low	1 – 60 µg/140 g	5 µg/140 g	Rebelytics <sup>(14)</sup> Global
Bread (multigrain)	Medium	1 – 110 µg/75 g	15 µg/75 g	Rebelytics <sup>(14)</sup> Global
Bread (whole wheat)	Medium	1 – 50 µg/75 g	15 µg/75 g	Rebelytics <sup>(14)</sup> Global
Bread, oat	Medium	1 – 50 µg/75 g	35 µg/75 g	Rebelytics <sup>(14)</sup> Global
Cereal bars	Medium	6.2 – 14.8 µg/35 g	10 µg/35 g	EFSA <sup>(20)</sup> European Countries
Crispbread	Medium	1 – 20 µg/30 g	5 µg/30 g	Rebelytics <sup>(14)</sup> Global
Oat cereal (hot)	Medium	10 – 190 µg/194 g	75 µg/194 g	Rebelytics <sup>(14)</sup> Global
Pasta (whole wheat, cooked)	Medium	0 – 30 µg/215 g	15 µg/215 g	Rebelytics <sup>(14)</sup> Global
Quinoa (cooked)	Medium	0-30 µg/140 g	15 µg/140 g	Rebelytics <sup>(14)</sup> Global
Rice (brown, cooked)	Medium	1 – 30 µg/140 g	15 µg/140 g	Rebelytics <sup>(14)</sup> Global
Rolls (multigrain)	Medium	1 – 40 µg/55 g	15 µg/55 g	Rebelytics <sup>(14)</sup> Global
Wheat bran (cold cereal)	Medium	1 – 40 µg/30 g	5 µg/30 g	Rebelytics <sup>(14)</sup> Global

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Breakfast cereals (not containing nuts, raisins)	High	9.1 – 124 µg/55 g	49.9 µg/55 g	INNIBEL <sup>(30)</sup> Belgium
Buckwheat cereal (hot)	High	30 – 220 µg/140 g	155 µg/140 g	Rebelytics <sup>(14)</sup> Global
Cereal flakes	High	15.8 – 149 µg/55 g	60 µg/55 g	EFSA <sup>(20)</sup> European Countries
Granola/muesli (cold)	High	1 – 130 µg/55 g	55 µg/55 g	Rebelytics <sup>(14)</sup> Global
Millet cereal (hot)	High	70 – 100 µg/194 g	105 µg/194 g	Rebelytics <sup>(14)</sup> Global
Muesli	High	20.9 – 99.9 µg/55 g	41.2 µg/55 g	EFSA <sup>(20)</sup> European Countries
<b>DAIRY PRODUCTS AND SUBSTITUTES</b>				
Butter	Low	0 – 10 µg/10 g	0.8 µg/10 g	EFSA <sup>(20)</sup> European Countries
Buttermilk	Low	0 – 12.8 µg/250 g	5 µg/250 g	EFSA <sup>(20)</sup> European Countries
Cheese (plain, processed, Edam, Camembert, Emmental, mozzarella, ricotta, Roquefort)	Low	0 – 5 µg/30 g	1.4 µg/30 g	EFSA <sup>(20)</sup> European Countries
Cream, sour cream	Low	0 – 1.5 µg/15 g	0.3 µg/15 g	EFSA <sup>(20)</sup> European Countries
Eggs (fresh and whole chicken eggs)	Low	0.5 – 8.8 µg/100 g	2.5 µg/100 g	EFSA <sup>(20)</sup> European Countries
Milk (cow's, condensed, goat's)	Low	0 – 20 µg/250 g	4.8 µg/250 g	EFSA <sup>(20)</sup> European Countries
Milk (dried)	Low	0 – 2.5 µg/25 g	1.3 µg/25 g	EFSA <sup>(20)</sup> European Countries
Milk (flavored beverages)	Low	0 – 44 µg/250 g	22 µg/250 g	EFSA <sup>(20)</sup> European Countries
Yogurt (milk, plain), yogurt (sheep milk)	Low	0 – 5 µg/175 g	1.8 µg/175 g	EFSA <sup>(20)</sup> European Countries
Ice cream (milk-based)	Low	0 – 12.9 µg/129 g	2 µg/129 g	EFSA <sup>(20)</sup> European Countries
Ice cream (vanilla)	Low	0 – 40 µg/129 g	5 µg/129 g	Rebelytics <sup>(14)</sup> Global
Yogurt substitute (coconut)	Low	0 – 130 µg/175 g	15 µg/175 g	Rebelytics <sup>(14)</sup> Global
Cheese (feta)	Medium	2.2 – 11.1 µg/30 g	4.9 µg/30 g	EFSA <sup>(20)</sup> European Countries
Cheese (gouda)	Medium	0.3 – 7.4 µg/30 g	3.8 µg/30 g	EFSA <sup>(20)</sup> European Countries
Cheese (processed, sliceable)	Medium	0 – 6.9 µg/30 g	1.3 µg/30 g	EFSA <sup>(20)</sup> European Countries
Custard	Medium	0 – 81.3 µg/129 g	16.7 µg/129 g	EFSA <sup>(20)</sup> European Countries
Ice cream (not milk-based)	Medium	14.7 – 30.8 µg/129 g	18.7 µg/129 g	EFSA <sup>(20)</sup> European Countries
Ice cream desserts (non-dairy)	Medium	10 – 90 µg/129 g	45 µg/129 g	Rebelytics <sup>(14)</sup> Global
Oat beverage	Medium	10 – 50 µg/250 g	35 µg/250 g	Rebelytics <sup>(14)</sup> Global
Paneer, khoa, halloumi	Medium	1 – 30 µg/80 g	15 µg/80 g	Rebelytics <sup>(14)</sup> Global
Soy beverage	Medium	1 – 130 µg/250 g	55 µg/250 g	Rebelytics <sup>(14)</sup> Global
Tofu	Medium	8.9 – 77.3 µg/85 g	32.6 µg/85 g	EFSA <sup>(20)</sup> European Countries
Tofu	High	10 – 370 µg/85 g	105 µg/85 g	Rebelytics <sup>(14)</sup> Global
<b>FATS AND OILS</b>				
Coconut oil	Low	0 – 1 µg/10 g	0.4 µg/10 g	EFSA <sup>(20)</sup> European Countries
Corn oil	Low	0 – 0.6 µg/10 g	0.3 µg/10 g	EFSA <sup>(20)</sup> European Countries
Margarine (normal and low fat)	Low	0 – 0.4 µg/10 g	0.1 µg/10 g	EFSA <sup>(20)</sup> European Countries
Walnut oil	Low	0 – 1.6 µg/10 g	0.4 µg/10 g	EFSA <sup>(20)</sup> European Countries

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Coconut fat	Medium	2.5 – 5 µg/10 g	2.5 µg/10 g	EFSA <sup>(20)</sup> European Countries
Pork lard	Medium	–	3.2 µg/10 g	EFSA <sup>(20)</sup> European Countries
Rapeseed oil	Medium	0 – 10 µg/10 g	1.1 µg/10 g	EFSA <sup>(20)</sup> European Countries
Sunflower oil	Medium	0.3 – 2 µg/10 g	1.5 µg/10 g	EFSA <sup>(20)</sup> European Countries
Peanut butter	High	10.4 – 112 µg/15 g	26.6 µg/15 g	EFSA <sup>(20)</sup> European Countries
Shortening	High	1 – 30 µg/10 g	15 µg/10 g	Rebelytics <sup>(14)</sup> Global
<b>FISH AND SEAFOOD</b>				
Anchovy (cooked)	Low	0 – 20 µg/100 g	4 µg/100 g	EFSA <sup>(20)</sup> European Countries
Bass (cooked)	Low	0 – 23 µg/100 g	0.4 µg/100 g	EFSA <sup>(20)</sup> European Countries
Cod, whiting (cooked)	Low	0 – 9.8 µg/100 g	4.4 µg/100 g	EFSA <sup>(20)</sup> European Countries
Fish (canned)	Low	0 – 20 µg/55 g	5 µg/55 g	Rebelytics <sup>(14)</sup> Global
Fish (salted or smoked)	Low	0 – 100 µg/55 g	5 µg/55 g	Rebelytics <sup>(14)</sup> Global
Herring (cooked)	Low	0 – 10 µg/100 g	3.2 µg/100 g	EFSA <sup>(20)</sup> European Countries
Lobster	Low	0 – 50 µg/100 g	9 µg/100 g	EFSA <sup>(20)</sup> European Countries
Mackerel (cooked)	Low	0 – 7.1 µg/100 g	2.5 µg/100 g	EFSA <sup>(20)</sup> European Countries
Mussels	Low	1.2 – 23 µg/100 g	7 µg/100 g	INNIBEL <sup>(30)</sup> Belgium
Oysters (cooked)	Low	0 – 24 µg/100 g	8 µg/100 g	EFSA <sup>(20)</sup> European Countries
Plaice (cooked)	Low	0 – 5 µg/100 g	2.5 µg/100 g	EFSA <sup>(20)</sup> European Countries
Prawns (cooked)	Low	0 – 50 µg/100 g	5 µg/100 g	EFSA <sup>(20)</sup> European Countries
Shrimps	Low	–	<4 µg/100 g	INNIBEL <sup>(30)</sup> Belgium
Swordfish (cooked)	Low	0 – 20 µg/100 g	7.9 µg/100 g	EFSA <sup>(20)</sup> European Countries
Tuna	Low	0 – 17 µg/100 g	5.6 µg/100 g	EFSA <sup>(20)</sup> European Countries
Carp	Medium	0 – 33.9 µg/100 g	13.7 µg/100 g	EFSA <sup>(20)</sup> European Countries
Grey mullet	Medium	3 – 110 µg/100 g	15.8 µg/100 g	EFSA <sup>(20)</sup> European Countries
Mussels	Medium	9 – 50 µg/100 g	23.7 µg/100 g	EFSA <sup>(20)</sup> European Countries
Roach	Medium	0 – 56.8 µg/100 g	20.5 µg/100 g	EFSA <sup>(20)</sup> European Countries
Sole	Medium	14 – 64 µg/100 g	39 µg/100 g	EFSA <sup>(20)</sup> European Countries
Whelks	Medium	7.6 – 38 µg/100 g	13 µg/100 g	EFSA <sup>(20)</sup> European Countries
Bivalves (canned)	High	20 – 50 µg/55 g	35 µg/55 g	Rebelytics <sup>(14)</sup> Global
Clams	High	24 – 155 µg/100 g	66.1 µg/100 g	EFSA <sup>(20)</sup> European Countries
Cockles	High	110 – 941 µg/100 g	559 µg/100 g	EFSA <sup>(20)</sup> European Countries
Mussels (cooked)	High	1 – 470 µg/100 g	55 µg/100 g	Rebelytics <sup>(14)</sup> Global
<b>FRUIT AND BERRIES</b>				
Apples	Low	0 – 35 µg/140 g	4.6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Bananas	Low	0 – 28 µg/140 g	7.8 µg/140 g	EFSA <sup>(20)</sup> European Countries
Blueberries	Low	1 – 12 µg/80 g	4.5 µg/80 g	EFSA <sup>(20)</sup> European Countries
Canned fruit	Low	2.4 – 35 µg/140 g	11 µg/140 g	EFSA <sup>(20)</sup> European Countries
Cranberries	Low	–	1.7 µg/55 g	EFSA <sup>(20)</sup> European Countries
Currants (black, red, etc.)	Low	3.4 – 7.8 µg/80 g	4.9 µg/80 g	EFSA <sup>(20)</sup> European Countries

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Dried dates	Low	0 – 19.2 µg/40 g	3.4 µg/40 g	EFSA <sup>(20)</sup> European Countries
Figs	Low	–	3.5 µg/140 g	EFSA <sup>(20)</sup> European Countries
Grapes (table)	Low	0 – 28 µg/140 g	4.6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Kiwi	Low	0 – 17 µg/140 g	6.1 µg/140 g	EFSA <sup>(20)</sup> European Countries
Lemon, limes	Low	0 – 3.9 µg/55 g	1.5 µg/55 g	EFSA <sup>(20)</sup> European Countries
Lingonberries	Low	0 – 19 µg/80 g	7 µg/80 g	EFSA <sup>(20)</sup> European Countries
Lychee	Low	0 – 8.8 µg/140 g	5.3 µg/140 g	EFSA <sup>(20)</sup> European Countries
Mandarins	Low	1.7 – 36 µg/140 g	8.5 µg/140 g	EFSA <sup>(20)</sup> European Countries
Mangos	Low	0 – 34 µg/140 g	6.7 µg/140 g	EFSA <sup>(20)</sup> European Countries
Melons	Low	1.7 – 11 µg/150 g	6.9 µg/150 g	EFSA <sup>(20)</sup> European Countries
Oranges	Low	1.7 – 10 µg/140 g	5.6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Peaches	Low	0 – 34 µg/140 g	11.3 µg/140 g	EFSA <sup>(20)</sup> European Countries
Plums	Low	1.3 – 18 µg/140 g	6.4 µg/140 g	EFSA <sup>(20)</sup> European Countries
Strawberries	Low	1.5 – 14 µg/140 g	5.6 µg/140 g	EFSA <sup>(20)</sup> European Countries
Strawberries	Low	0 – 50 µg/140 g	5 µg/140 g	Rebelytics <sup>(14)</sup> Global
Watermelon	Low	3.6 – 14 µg/150 g	6.3 µg/150 g	EFSA <sup>(20)</sup> European Countries
Apricot	Medium	–	25 µg/140 g	Rebelytics <sup>(14)</sup> Global
Apricots (canned)	Medium	1 – 220 µg/140 g	15 µg/140 g	Rebelytics <sup>(14)</sup> Global
Avocado	Medium	18 – 96 µg/140 g	44.2 µg/140 g	EFSA <sup>(20)</sup> European Countries
Blackberries	Medium	2.2 – 35 µg/80 g	11 µg/80 g	EFSA <sup>(20)</sup> European Countries
Blackberries	Medium	10 – 30 µg/80 g	15 µg/80 g	Rebelytics <sup>(14)</sup> Global
Dates	Medium	9.5 – 48 µg/140 g	16.8 µg/140 g	EFSA <sup>(20)</sup> European Countries
Dried apricots ( <i>Prunus armeniaca</i> )	Medium	8 – 35.6 µg/40 g	19.7 µg/40 g	EFSA <sup>(20)</sup> European Countries
Dried prunes ( <i>Prunus domestica</i> )	Medium	2.1 – 29 µg/40 g	6 µg/40 g	EFSA <sup>(20)</sup> European Countries
Dried vine fruits (currants, raisins, sultanas)	Medium	0 – 34 µg/40 g	4.8 µg/40 g	EFSA <sup>(20)</sup> European Countries
Grapefruit	Medium	2 – 35 µg/140 g	14.1 µg/140 g	EFSA <sup>(20)</sup> European Countries
Lychee	Medium	1 – 40 µg/140 g	15 µg/140 g	Rebelytics <sup>(14)</sup> Global
Passionfruit	Medium	–	35 µg/140 g	Rebelytics <sup>(14)</sup> Global
Pineapple	Medium	0 – 148 µg/140 g	26.5 µg/140 g	EFSA <sup>(20)</sup> European Countries
Plums	Medium	1 – 80 µg/140 g	25 µg/140 g	Rebelytics <sup>(14)</sup> Global
Pomegranate	Medium	0 – 16 µg/80 g	8.8 µg/80 g	EFSA <sup>(20)</sup> European Countries
Raisins	Medium	2.9 – 10 µg/40 g	5 µg/40 g	INNIBEL <sup>(30)</sup> Belgium
Raspberries	Medium	4.2 – 24 µg/80 g	9.3 µg/80 g	EFSA <sup>(20)</sup> European Countries
Table olives ( <i>Olea europaea</i> )	Medium	0.6 – 3 µg/15 g	1.8 µg/15 g	EFSA <sup>(20)</sup> European Countries
Cocoa (powder)	High	20 – 90 µg/5 g	55 µg/5 g	Rebelytics <sup>(14)</sup> Global
Coconut (dried)	High	1 – 50 µg/15 g	25 µg/15 g	Rebelytics <sup>(14)</sup> Global
Coconut (fresh)	High	30 – 190 µg/140 g	105 µg/140 g	Rebelytics <sup>(14)</sup> Global
Dried apricots	High	10 – 50 µg/40 g	35 µg/40 g	Rebelytics <sup>(14)</sup> Global
Dried figs	High	34.4 – 147 µg/40 g	62.6 µg/40 g	INNIBEL <sup>(30)</sup> Belgium

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Dried figs	High	40 – 60 µg/40 g	45 µg/40 g	Rebelytics <sup>(14)</sup> Global
Prunes	High	10 – 30 µg/40 g	25 µg/40 g	Rebelytics <sup>(14)</sup> Global
<b>HERBS AND SPICES AND CONDIMENTS</b>				
Dill (fresh)	Low	0.07 – 0.3 µg/1.5 g	0.13 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Gelatine	Low	0 – 1.2 µg/15 g	0.18 µg/15 g	EFSA <sup>(20)</sup> European Countries
Mayonnaise	Low	0 – 1.1 µg/15 g	0.4 µg/15 g	EFSA <sup>(20)</sup> European Countries
Salad dressing	Low	1.9 – 3.2 µg/30 g	2.6 µg/30 g	EFSA <sup>(20)</sup> European Countries
Salsa	Low	3.2 – 9.3 µg/60 g	4.7 µg/60 g	EFSA <sup>(20)</sup> European Countries
Vinegar (wine)	Low	0 – 0.9 µg/15 g	0.5 µg/15 g	EFSA <sup>(20)</sup> European Countries
Chives	Medium	0.03 – 0.6 µg/1.5 g	0.15 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Chives	Medium	–	0.5 µg/1.5 g	Rebelytics <sup>(14)</sup> Global
Cinnamon	Medium	0.07 – 0.4 µg/0.5 g	0.17 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Dressings	Medium	0 – 220 µg/30 g	5 µg/30 g	Rebelytics <sup>(14)</sup> Global
Fruit jams	Medium	0 – 20 µg/15 g	5 µg/15 g	Rebelytics <sup>(14)</sup> Global
Garlic	Medium	0 – 10 µg/4 g	0.5 µg/4 g	Rebelytics <sup>(14)</sup> Global
Ginger (fresh)	Medium	0.19 – 2.6 µg/1.5 g	0.68 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Gravy granules (instant)	Medium	0 – 7.5 µg/15 g	1.5 µg/15 g	EFSA <sup>(20)</sup> European Countries
Ketchup	Medium	0 – 10 µg/15 g	5 µg/15 g	Rebelytics <sup>(14)</sup> Global
Mustard (mild)	Medium	0.72 – 1.7 µg/5 g	1.2 µg/5 g	EFSA <sup>(20)</sup> European Countries
Parsley (fresh)	Medium	0.09 – 1.7 µg/1.5 g	0.6 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Rosemary	Medium	0.05 – 1.3 µg/1.5 g	0.3 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Salt (common)	Medium	0 – 4 µg/1 g	0.48 µg/1 g	EFSA <sup>(20)</sup> European Countries
Soy sauce	Medium	0 – 40 µg/15 g	5 µg/15 g	Rebelytics <sup>(14)</sup> Global
Vinegar (apple)	Medium	0 – 2.7 µg/15 g	1.5 µg/15 g	EFSA <sup>(20)</sup> European Countries
Basil (fresh)	High	0.14 – 6.4 µg/1.5 g	2 µg/1.5 g	EFSA <sup>(20)</sup> European Countries
Cardamom	High	–	0.3 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Nutmeg	High	0.33 – 0.41 µg/0.5 g	0.37 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Oregano (dry)	High	–	5 µg/0.5 g	Rebelytics <sup>(14)</sup> Global
Paprika powder	High	0.5 – 2.6 µg/0.5 g	1.2 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Pepper (black and white)	High	0.6 – 2.9 µg/0.5 g	1.3 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Sage	High	0.08 – 0.9 µg/0.5 g	0.3 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Tartar sauce	High	0 – 50 µg/30 g	15 µg/30 g	Rebelytics <sup>(14)</sup> Global
Thyme	High	0.4 – 1.6 µg/0.5 g	0.8 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
Turmeric	High	0.3 – 0.45 µg/0.5 g	0.37 µg/0.5 g	EFSA <sup>(20)</sup> European Countries
<b>JUICES</b>				
Apple juice	Low	0 – 25 µg/250 g	5.8 µg/250 g	EFSA <sup>(20)</sup> European Countries
Apple juice (canned or bottled)	Low	0 – 40 µg/250 g	5 µg/250 g	Rebelytics <sup>(14)</sup> Global
Blackcurrant juice	Low	8 – 37.5 µg/250 g	17.8 µg/250 g	EFSA <sup>(20)</sup> European Countries
Carrot juice	Low	9 – 21.8 µg/250 g	13.5 µg/250 g	EFSA <sup>(20)</sup> European Countries
Citrus juice	Low	0 – 10 µg/250 g	5 µg/250 g	Rebelytics <sup>(14)</sup> Global



Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Cranberry juice	Low	0 – 5 µg/250 g	1.6 µg/250 g	EFSA <sup>(20)</sup> European Countries
Elderberry juice	Low	12.5 – 17.8 µg/250 g	14.3 µg/250 g	EFSA <sup>(20)</sup> European Countries
Grape juice	Low	0 – 20 µg/250 g	5 µg/250 g	Rebelytics <sup>(14)</sup> Global
Grape juice	Low	0 – 25 µg/250 g	8.3 µg/250 g	EFSA <sup>(20)</sup> European Countries
Grapefruit juice	Low	0 – 12.5 µg/250 g	6.3 µg/250 g	EFSA <sup>(20)</sup> European Countries
Lemonade	Low	0 – 10 µg/250 g	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Mango juice	Low	0 - 10 µg/250 g	5 µg/250 g	Rebelytics <sup>(14)</sup> Global
Peach juice	Low	–	5 µg/250 g	Rebelytics <sup>(14)</sup> Global
Pear juice	Low	1 – 30 µg/250 g	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Pineapple juice	Low	1 – 20 µg/250 g	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Tomato juice	Low	10 – 25.3 µg/250 g	15.3 µg/250 g	EFSA <sup>(20)</sup> European Countries
Tomato juice	Low	–	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Vegetable juice	Low	1 – 30 µg/250 g	15 µg/250 g	Rebelytics <sup>(14)</sup> Global
Blackberry juice	Medium	0 – 50 µg/250 g	25 µg/250 g	EFSA <sup>(20)</sup> European Countries
Prune juice	Medium	20 – 80 µg/250 g	35 µg/250 g	Rebelytics <sup>(14)</sup> Global
<b>MEAT AND POULTRY</b>				
Bacon (cooked)	Low	0 – 7.5 µg/15 g	0.6 µg/15 g	EFSA <sup>(20)</sup> European Countries
Chicken	Low	0 – 12 µg/100 g	8.1 µg/100 g	EFSA <sup>(20)</sup> European Countries
Duck	Low	0 – 15 µg/100 g	3.6 µg/100 g	EFSA <sup>(20)</sup> European Countries
Goose	Low	0 – 5 µg/100 g	1.8 µg/100 g	EFSA <sup>(20)</sup> European Countries
Ham	Low	0.9 – 3.5 µg/55 g	1.7 µg/55 g	EFSA <sup>(20)</sup> European Countries
Kidney (beef)	Low	0 – 9.5 µg/100 g	3.1 µg/100 g	EFSA <sup>(20)</sup> European Countries
Lamb (mutton)	Low	0 – 36.6 µg/100 g	6.6 µg/100 g	EFSA <sup>(20)</sup> European Countries
Pheasant	Low	0 – 5 µg/100 g	2.2 µg/100 g	EFSA <sup>(20)</sup> European Countries
Pork	Low	0 – 12.7 µg/100 g	8.9 µg/100 g	EFSA <sup>(20)</sup> European Countries
Poultry	Low	5.1 – 11 µg/100 g	8.1 µg/100 g	EFSA <sup>(20)</sup> European Countries
Quail	Low	0 – 1.5 µg/100 g	0.8 µg/100 g	EFSA <sup>(20)</sup> European Countries
Sausage (cooked)	Low	0 – 10.6 µg/55 g	4.2 µg/55 g	EFSA <sup>(20)</sup> European Countries
Turkey	Low	0 – 6 µg/100 g	2.4 µg/100 g	EFSA <sup>(20)</sup> European Countries
Veal	Low	0 – 5 µg/100 g	2 µg/100 g	EFSA <sup>(20)</sup> European Countries
Beef	Medium	0 – 30.3 µg/100 g	10.4 µg/100 g	EFSA <sup>(20)</sup> European Countries
Beef or pork (ground, cooked)	Medium	0 – 310 µg/100 g	15 µg/100 g	Rebelytics <sup>(14)</sup> Global
Mutton (cooked)	Medium	1 – 60 µg/100 g	15 µg/100 g	Rebelytics <sup>(14)</sup> Global
Pork (cured, cooked)	Medium	0 – 390 µg/55 g	15 µg/55 g	Rebelytics <sup>(14)</sup> Global
Venison	Medium	0 – 123 µg/100 g	31.3 µg/100 g	EFSA <sup>(20)</sup> European Countries
<b>NUTS AND SEEDS</b>				
Almonds	High	21.3 – 59.4 µg/30 g	30.9 µg/30 g	EFSA <sup>(20)</sup> European Countries
Brazil nuts	High	107 – 183 µg/30 g	124 µg/30 g	EFSA <sup>(20)</sup> European Countries
Cashew nuts	High	152 – 202 µg/30 g	168 µg/30 g	EFSA <sup>(20)</sup> European Countries

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Chestnuts	High	3 – 2250 µg/30 g	171 µg/30 g	EFSA <sup>(20)</sup> European Countries
Flax seeds	High	30 – 70 µg/30 g	55 µg/30 g	Rebelytics <sup>(14)</sup> Global
Hazelnuts	High	35.9 – 115 µg/30 g	71.5 µg/30 g	INNIBEL <sup>(30)</sup> Belgium
Peanuts	High	17.8 – 341 µg/30 g	96.5 µg/30 g	EFSA <sup>(20)</sup> European Countries
Pistachios	High	12.2 – 52.2 µg/30 g	28.5 µg/30 g	INNIBEL <sup>(30)</sup> Belgium
Poppy seeds	High	0 – 42 µg/30 g	23.4 µg/30 g	EFSA <sup>(20)</sup> European Countries
Pumpkin seeds	High	32.7 – 77.4 µg/30 g	47.4 µg/30 g	EFSA <sup>(20)</sup> European Countries
Sesame seeds	High	21.5 – 49.50 µg/30 g	28 µg/30 g	EFSA <sup>(20)</sup> European Countries
Sunflower seeds	High	42.6 – 193 µg/30 g	84.5 µg/30 g	EFSA <sup>(20)</sup> European Countries
Walnuts	High	21.6 – 138.7 µg/30 g	72.3 µg/30 g	INNIBEL <sup>(30)</sup> Belgium
<b>SUGAR AND CONFECTIONARY</b>				
Fudge	Low	0 – 4 µg/40 g	2 µg/40 g	EFSA <sup>(20)</sup> European Countries
Sugar (brown)	Low	–	0.5 µg/4 g	Rebelytics <sup>(14)</sup> Global
Sugar (cane)	Low	0 – 0.5 µg/4 g	0.14 µg/4 g	EFSA <sup>(20)</sup> European Countries
Sugar (white)	Low	0 – 0.6 µg/4 g	0.25 µg/4 g	EFSA <sup>(20)</sup> European Countries
Candy	Medium	0 – 30 µg/40 g	5 µg/40 g	Rebelytics <sup>(14)</sup> Global
Chocolate (white)	Medium	0 – 20 µg/15 g	5 µg/15 g	Rebelytics <sup>(14)</sup> Global
Chocolate pudding	Medium	10 – 40 µg/130 g	25 µg/130 g	Rebelytics <sup>(14)</sup> Global
Honey	Medium	0 – 10 µg/20 g	5.2 µg/20 g	EFSA <sup>(20)</sup> European Countries
Marzipan	Medium	–	5 µg/30 g	Rebelytics <sup>(14)</sup> Global
Molasses	Medium	9.5 – 15.8 µg/20 g	9.9 µg/20 g	EFSA <sup>(20)</sup> European Countries
Toffee	Medium	10.2 – 22 µg/40 g	14.3 µg/40 g	EFSA <sup>(20)</sup> European Countries
Treacle	Medium	0 – 20 µg/20 g	2.7 µg/20 g	EFSA <sup>(20)</sup> European Countries
White chocolate	Medium	0 – 12.4 µg/15 g	1.5 µg/15 g	EFSA <sup>(20)</sup> European Countries
Bitter chocolate	High	97 – 240 µg/40 g	131 µg/40 g	EFSA <sup>(20)</sup> European Countries
Chocolate confections	High	1 – 130 µg/40 g	35 µg/40 g	Rebelytics <sup>(14)</sup> Global
Chocolate confections (with nuts)	High	0 – 120 µg/40 g	25 µg/40 g	Rebelytics <sup>(14)</sup> Global
Cooking chocolate	High	76 – 180 µg/40 g	101 µg/40 g	EFSA <sup>(20)</sup> European Countries
Maple syrup	High	0 – 60 µg/60 g	30 µg/60 g	EFSA <sup>(20)</sup> European Countries
Milk chocolate	High	22 – 36.4 µg/40 g	25.4 µg/40 g	EFSA <sup>(20)</sup> European Countries
Nougat	High	–	27.7 µg/40 g	EFSA <sup>(20)</sup> European Countries
<b>VEGETABLES AND LEGUMES</b>				
Aubergines (eggplant)	Low	0 – 5.2 µg/85 g	1.5 µg/85 g	EFSA <sup>(20)</sup> European Countries
Beetroot	Low	0 – 23.8 µg/85 g	8.4 µg/85 g	EFSA <sup>(20)</sup> European Countries
Brussel sprouts	Low	2 – 4.3 µg/85 g	3.1 µg/85 g	EFSA <sup>(20)</sup> European Countries
Cabbage	Low	0 – 14.5 µg/85 g	4.8 µg/85 g	EFSA <sup>(20)</sup> European Countries
Carrots	Low	0 – 8.2 µg/85 g	2.7 µg/85 g	INNIBEL <sup>(30)</sup> Belgium
Cauliflower	Low	0.77 – 6.8 µg/85 g	2.7 µg/85 g	EFSA <sup>(20)</sup> European Countries
Cucumber	Low	0 – 6 µg/85 g	1.8 µg/85 g	EFSA <sup>(20)</sup> European Countries

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Fennel	Low	3.2 – 6.5 µg/85 g	4.5 µg/85 g	EFSA <sup>(20)</sup> European Countries
Leek	Low	0 – 8.5 µg/85 g	3.3 µg/85 g	EFSA <sup>(20)</sup> European Countries
Lettuce	Low	0 – 12.8 µg/85 g	4.3 µg/85 g	EFSA <sup>(20)</sup> European Countries
Mushrooms (cultivated)	Low	0 – 6.7 µg/85 g	2.5 µg/85 g	EFSA <sup>(20)</sup> European Countries
Onions (spring)	Low	0.4 – 5.2 µg/40 g	1.7 µg/40 g	EFSA <sup>(20)</sup> European Countries
Peppers (paprika)	Low	0.3 – 15.3 µg/85 g	6.2 µg/85 g	EFSA <sup>(20)</sup> European Countries
Potatoes (boiled)	Low	3 – 6.8 µg/167 g	5.4 µg/167 g	EFSA <sup>(20)</sup> European Countries
Potatoes (fried)	Low	0 – 4.2 µg/70 g	2.8 µg/70 g	EFSA <sup>(20)</sup> European Countries
Potatoes (new)	Low	2 – 19.8 µg/110 g	5.9 µg/110 g	EFSA <sup>(20)</sup> European Countries
Radishes	Low	0 – 17 µg/85 g	2.9 µg/85 g	EFSA <sup>(20)</sup> European Countries
Rhubarb	Low	6.6 – 20.3 µg/140 g	9.7 µg/140 g	EFSA <sup>(20)</sup> European Countries
Rocket (rucola)	Low	1.1 – 17 µg/85 g	5.6 µg/85 g	EFSA <sup>(20)</sup> European Countries
Sauerkraut	Low	5.2 – 9.9 µg/85 g	5.8 µg/85 g	EFSA <sup>(20)</sup> European Countries
Shallots	Low	1.3 – 7.7 µg/85 g	3.6 µg/85 g	EFSA <sup>(20)</sup> European Countries
Swedes	Low	3.1 – 17.3 µg/85 g	7.7 µg/85 g	EFSA <sup>(20)</sup> European Countries
Sweet corn	Low	1.4 – 35 µg/85 g	8 µg/85 g	EFSA <sup>(20)</sup> European Countries
Sweet potato (cooked)	Low	0 – 60 µg/167 g	15 µg/167 g	Rebelytics <sup>(14)</sup> Global
Turnips	Low	0 – 36.6 µg/85 g	4.1 µg/85 g	EFSA <sup>(20)</sup> European Countries
Yams (cooked)	Low	–	15 µg/167 g	Rebelytics <sup>(14)</sup> Global
Artichokes	Medium	7.9 – 111 µg/85 g	30.9 µg/85 g	EFSA <sup>(20)</sup> European Countries
Asparagus	Medium	3.5 – 34 µg/85 g	11.6 µg/85 g	EFSA <sup>(20)</sup> European Countries
Broccoli	Medium	2.9 – 37.4 µg/85 g	14.7 µg/85 g	EFSA <sup>(20)</sup> European Countries
Celery	Medium	3.8 – 26.4 µg/85 g	8.5 µg/85 g	EFSA <sup>(20)</sup> European Countries
Kale	Medium	1.7 – 425 µg/85 g	28.1 µg/85 g	EFSA <sup>(20)</sup> European Countries
Mushrooms (canned)	Medium	1 – 30 µg/130 g	15 µg/130 g	Rebelytics <sup>(14)</sup> Global
Okra	Medium	–	20.1 µg/85 g	EFSA <sup>(20)</sup> European Countries
Onions	Medium	0.77 – 57.8 µg/85 g	15.9 µg/85 g	EFSA <sup>(20)</sup> European Countries
Parsnips	Medium	5.7 – 19.3 µg/85 g	9.7 µg/85 g	EFSA <sup>(20)</sup> European Countries
Parsnips	Medium	1 – 40 µg/85 g	15 µg/85 g	Rebelytics <sup>(14)</sup> Global
Pumpkin (cooked)	Medium	1 – 20 µg/130 g	15 µg/130 g	Rebelytics <sup>(14)</sup> Global
Snow peas	Medium	–	15 µg/85 g	Rebelytics <sup>(14)</sup> Global
Spinach	Medium	0 – 38.3 µg/85 g	11.1 µg/85 g	EFSA <sup>(20)</sup> European Countries
Sweet potato	Medium	1.4 – 28.6 µg/110 g	12.7 µg/110 g	EFSA <sup>(20)</sup> European Countries
Tomatoes	Medium	0 – 26.6 µg/85 g	8.8 µg/85 g	EFSA <sup>(20)</sup> European Countries
Yams	Medium	10 – 30 µg/110 g	15 µg/110 g	Rebelytics <sup>(14)</sup> Global
Beans	High	69.4 – 804 µg/80 g	231 µg/80 g	INNIBEL <sup>(30)</sup> Belgium
Leguminous vegetables	High	55.6 – 374 µg/80 g	174 µg/80 g	INNIBEL <sup>(30)</sup> Belgium
Lentils	High	58.7 – 296 µg/80 g	151 µg/80 g	INNIBEL <sup>(30)</sup> Belgium
Lentils (cooked)	High	50 – 80 µg/80 g	65 µg/80 g	Rebelytics <sup>(14)</sup> Global

Food	Level of Nickel <sup>1</sup>	Nickel Content Range (µg/serving) <sup>2</sup>	Mean Nickel Content (µg/serving) <sup>3</sup>	Data Source (Reference and Region Included) <sup>4, 5, 6</sup>
Peas	High	46.9 – 354 µg/85 g	120 µg/85 g	INNIBEL <sup>(30)</sup> Belgium
Sea weeds	High	4 – 93.7 µg/15 g	30.7 µg/15 g	EFSA <sup>(20)</sup> European Countries
<b>MISCELLANEOUS</b>				
Pretzels	Low	0 – 8.5 µg/50 g	3.6 µg/50 g	EFSA <sup>(20)</sup> European Countries
Potato crisps/potato chips	Medium	5.2 – 60 µg/50 g	15.6 µg/50 g	EFSA <sup>(20)</sup> European Countries
Pretzels	Medium	0 – 10 µg/50 g	5 µg/50 g	Rebelytics <sup>(14)</sup> Global
Yeast	Medium	0.09 – 0.16 µg/0.6 g	0.12 µg/0.6 g	EFSA <sup>(20)</sup> European Countries
Baking powder	High	0 – 1.35 µg/0.6 g	0.68 µg/0.6 g	EFSA <sup>(20)</sup> European Countries
Baking powder	High	0 – 1 µg/0.6 g	0.5 µg/0.6 g	Rebelytics <sup>(14)</sup> Global
Yeast	High	–	0.5 µg/0.6 g	Rebelytics <sup>(14)</sup> Global

This Annex should be used in the context of the NiPERA Human Health Fact Sheet 6 *Low Nickel Diet For Nickel-Allergic Individuals Susceptible To Reactions From Oral Nickel Exposure* and is not meant to be a stand-alone document.

The footnotes to the annex table are listed below, and source details are located under References (Section 10) of the fact sheet.

1. **Low** = less than 100 µg/kg; **Medium** = 100–500 µg/kg; **High** = more than 500 µg/kg. Values are for content per kg of food. Nickel content per serving is shown in columns 3-4.
2. EFSA range values were the P25 LB and P95 UB values from EFSA Annex C (Table C.6). INNIBEL range values were calculated using the minimum and maximum values provided in the INNIBEL report. EFSA and INNIBEL range values were adjusted from µg/kg food to µg/g serving size using the Rebelytics serving sizes for each food,<sup>(14)</sup> derived from the Health Canada “Table of Reference Amounts for Food” as the basis for serving sizes.<sup>(31)</sup>
3. EFSA mean values were calculated using the average values of the mean LB and the mean UB from the EFSA document, Annex C (Table C.6). Rebelytics mean values were calculated for each food using the mean score provided for each entry and finding the median value (e.g., mean score of 2 = 10-20 µg/serving, median of 15 µg/serving used as mean in table above). INNIBEL mean values were calculated using the mean values cited in the INNIBEL report. EFSA and INNIBEL mean values were adjusted from µg/kg food to µg/g serving size using the Rebelytics serving sizes for each food,<sup>(14)</sup> derived from the Health Canada “Table of Reference Amounts for Food” as the basis for serving sizes.<sup>(31)</sup>
4. EFSA Panel on Contaminants in the Food Chain (CONTAM), data of 26 European countries (EFSA, Annex C, 2020).<sup>(20)</sup>
5. INNIBEL Final Scientific Report; data for Belgian foodstuffs (June 2019).<sup>(30)</sup>
6. Rebelytics values taken from global score sheet by Rebelytics Low-Nickel Global Diet Scoring System (July 2023).<sup>(14)</sup>



## Fact Sheet on Nickel and Human Health

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This is the sixth in a series of fact sheets addressing issues specific to the evaluation of risks to humans associated with nickel-containing substances and materials. The fact sheets are intended to assist the reader in understanding the complex issues and concepts associated with assessment of human health hazards, dose-response relationships, and exposure by summarizing key technical information and providing guidance for implementation.

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