
20th Century
Chrome

Chrome-Plated Steel 5¢ Coins

Canadian 5-cent coins were made of steel in the years 1944 and 1945.❶❷ In 1944, "war demands for copper and zinc forced a suspension in the use of tombac for the 5-cent piece and the institution of plated steel. The steel was plated with nickel [.0127 mm] and then returned to the plating tank for a very thin plating of chromium [.0003 mm]. The chromium was hard and helped retard wear." [1] "Chrome doesn't stick to raw steel very well... it needs to be electroplated over a base metal that it sticks to, such as nickel."[2]

"A chromium-plated steel five-cent piece... was agreed upon, and first issued in 1944. Much thought was given to an explanation for this... the Finance Department was ready to say that the change was needed because the Mint could not handle the current demands. The Mint proposed a blunt statement that the public disliked the tombac coins. This was thought to reflect badly on the Finance department. As a compromise, the public was told that the change depended on a shortage of both components of tombac, namely copper and zinc... By early 1945, supplies of nickel were sufficient to permit this metal's use in coinage, but the government continued to issue the steel coins... as a gesture to the Stanley Steel Co which had gone to some trouble in order to supply the steel blanks."[3]

Steel planchets were also used in the years 1951 to 1954.❸❹❺❻❼ "The Korean War which had begun in 1950 put renewed pressure on Canada's supply of refined nickel which was useful for weapons of war as well as for coins. Once again the five-cent piece had to be composed of steel."[3]

Raw Steel Edge

To prepare metal for minting, an ingot of coin metal is rolled out into a long narrow strip which may be several hundred feet long and weigh several hundred pounds.[4] The strip is then coiled before being sent to a blanking press. "Unfortunately it was necessary to plate the strips prior to the blanks being punched out. This resulted in the edges of the blanks (and hence the coins) being unplated and vulnerable to rusting."[1] The unplated edge of the coin also leaves the plating layers more susceptible to lamination (peeling) off of the substrate.❽

Circulation Problems

The raw steel edge of 20th century plated coins easily discolor and rust in the presence of moisture and/or normal human perspiration. While in circulation, scratches and nicks in the surface of the coins expose the steel core, resulting in bubbling,❾ blistering, or flaking of the plating layers. Heavily worn coins may have portions of the plating layers completely worn off, leaving them prone to surface rust.❿

Coin Exhibit

❶ 5¢ 1944
❷ 5¢ 1945
❸ 5¢ 1951 LR
❹ 5¢ 1952
❺ 5¢ 1953 SF
❻ 5¢ 1953 NSF
❼ 5¢ 1954
❽ 5¢ 1945 Laminated Plating
❾ 5¢ 1945 Bubbling & Rust
❿ 5¢ 1945 Wear & Rust
⓫ 5¢ 1944 Missing Chrome
⓬ 5¢ 1945 Missing Chrome
⓭ 5¢ 1952 Missing Chrome
⓮ 5¢ 1953 SF Missing Chrome
⓯ 5¢ 1954 Missing Chrome
⓰ 5¢ 1944 Partial Chrome
⓱ 5¢ 1945 Partial Chrome
⓲ 5¢ 1944 Raw Steel Missing Plating Layers
⓳ 5¢ 1945 Raw Steel Missing Plating Layers
⓴ 5¢ 1945 Missing Nickel Plating Layer

Missing Chrome & Partial Chrome Plating

20th Century chrome plated 5-cent pieces have a blue color tint. "Some collectors have noted steel 5-cent pieces which have a dull gray color… this is the result of some strips being plated with nickel only."[1] ⓫⓬⓭⓮⓯ Coins that show varying shades of blue and gray are only partially plated with chrome.⓰⓱ "There are chemical ways to find out the composition… but visual [inspection] is the best method."[2]

It's likely that coin strip was plated while coiled, in order to fit into a plating bath tank. Missing or partial plating errors may have resulted from some coils being too tightly wound, a faulty plating bath, insufficient time in the bath, surface contaminants on the strip, or a combination of factors. "The methods of plating large pieces of steel were pretty crude 50 odd years ago."[2] "The quality control on the base metal was so poor, it explains the lack of chrome plating…the inspection process was totally lacking."[2]

Coins have been found missing both the nickel and chrome plating layers.⓲⓳ The appearance of the color and the distribution of surface rust traces are indicators (chrome and nickel do not exhibit surface rust). It is also possible some chromed coins did not properly receive the underlying nickel layer.⓴

Authentication

Coins with Missing Chrome, Partial Chrome, and Missing Plating have been authenticated and noted by two Canadian grading services.

Removing plating layers to create a fake Missing Chrome error coin is difficult. Chrome plating can be removed with acid, though this leaves the exposed steel edge of the coin porous and unnaturally colored.

Missing Chrome errors are authenticated by visual inspection. They are more difficult to evaluate than other types of error coins authenticated with standardized measurements such as weight, size, and magnetic properties.

Modern Rarity?

"The most common steel 5 cents missing the chromium plating is the 1944. They are fairly common, but very hard to find in high grade."[2] Missing Chrome coins from 1945 are less common than for the year 1944. There are sufficient quantities on the market for both of these years that they are now listed in the Trends section in Canadian Coin News.

Steel coins with Missing Chrome are hard to find for coins in the 1950s. At least one Missing Chrome 1951 High-Relief coin is known. Only handful of coins from 1951 – 1954 are presently known and/or certified as Missing Chrome. Are these coins modern rarities? Regarding a 1952 No Chrome coin, it is said that there are "very few collectors of this type coin and very few coins." [5]

References

1 *Canadian Coins,* 60th Edition, William Cross, The Charlton Press 2005
2 *Canadian Coin Reference Site,* Rick Simpson 2002–2005
3 *Striking Impressions,* 2nd Edition, J Haxby 1986
4 *Price Guide to Mint Errors,* A Herbert, House of Collectibles 2002
5 *Canadian Coin Reference Site,* R Ash 2003

1 5¢ 1944

2 5¢ 1945

3 5¢ 1951 LR

4 5¢ 1952

5 5¢ 1953 SF

6 5¢ 1953 NSF

7 5¢ 1954

8 5¢ 1945
Laminated Plating

9 5¢ 1945
Bubbling & Rust

10 5¢ 1945
Wear & Rust

11 5¢ 1944
Missing Chrome

12 5¢ 1945
Missing Chrome

13 5¢ 1952
Missing Chrome

14 5¢ 1953 SF
Missing Chrome

15 5¢ 1954
Missing Chrome

16 5¢ 1944
Partial Chrome

17 5¢ 1945
Partial Chrome

18 5¢ 1944 Steel,
Missing Plating

19 5¢ 1945 Steel,
Missing Plating

20 5¢ 1945 Missing
Nickel Plating Layer