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# **cmdtyIndexes Scrap Metal Index Family**

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Methodology - November 2018

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# 1 Index Overview

The cmdtyIndexes Scrap Metal Index Family is a series of indexes related to scrap metal prices that are available at scrap yards throughout the United States. This index series is intended to reflect fair values for retail scrap metal and can be used to identify trends in historical pricing behavior.

## Index Calculation Overview:



## 2 Data Collection and Integrity

**Data Collection:** Prices are collected from a wide variety of market participants that are geographically diverse across the United States. Barchart will accept price submissions from all credible sources which may include brokers, buyers, and back office participants. All possible sources of data are encouraged to contribute to the price indexes provided that their content aligns to the criteria for index inclusion. Barchart consistently seeks to increase the diversity of participants that are providing data to our price assessment.

The number of entities providing data may vary daily. Barchart's methodology accounts for this daily variation by providing an increased weighting to more recent price quotations. For a given product, should the number of price observations consistently drop below the minimum criteria for index calculation, Barchart will review the viability of the assessment for continued publishing.

All received prices are normalized into the ISRI standard format and aggregated for use in Barchart's index calculations.

**Independence:** Barchart has no affiliation, bias, and no vested interest in any of the markets that are covered by our price assessments. Data inputs are run through an automated cleaning and validation process thus ensuring the authenticity of the data.

**Quality:** Barchart processes the market prices through a custom cleaning and restructuring process that ensures data integrity as it is ingested by our index calculation engine.

## 3 Index Eligibility

After input prices are normalized and grouped to represent a standardized ISRI product type, index product candidates will be removed from the cmdtyIndexes Scrap Metal Index Family if there have been less than 20 stated price observations for any working day within the past calendar year.

The eligibility validation is scheduled on Dec 31st each year after market close, and Barchart will then calculate indexes for eligible scrap metals on the next working day.

## 4 Data Processing

### 4.1 Data Restructuring

Names of collected scrap metals are normalized based on ISRI Scrap Specifications

For example, consider below scenario.



Pricing units of collected scrap metals are normalized based on the following rules:

- Pricing units of Non-Ferrous and Stainless steel products are normalized to LB units.
- Pricing units of Ferrous products are normalized to CWT units.

### 4.2 Data Cleaning

Price and Unit of measurement filters have been implemented to identify potential erroneous data points. This ensures the highest quality data for index calculation. The filters are constructed through the following process:

1. **Filter by Unit:** Remove price observations which contain units other than LB, CWT and TON.
2. **Filter by Price:** Remove price observations falling outside of the 10th percentile to 90th percentile range of other prices which are grouped together.

## 5 Calculation Guide

### Calculation Methodology:

$$T_{ij}^t = \frac{1}{1 + \lfloor \frac{t-t_0^{ij}}{7} \rfloor}$$

$$C_i^t = \sum_{j=1}^{n_i^t} T_{ij}^t$$

$$W_{ij}^t = \frac{T_{ij}^t}{C_i^t}$$

$$I_i^t = \sum_{j=1}^{n_i^t} W_{ij}^t P_{ij}^t$$

where,

$t_0^{ij}$  is the most recent date that scrap yard  $j$  updated price for scrap metal  $i$  in format of day number, i.e. a number between 1 and 366.

$t$  is the date that index value is computed in format of day number, i.e. a number between 1 and 366.

$n_i^t$  is the total amount of scrap yards, which provided price quote for scrap metal  $i$ , at time  $t$ .

$T_{ij}^t$  is index adjusting parameter for price scrap yard  $j$  paid for scrap metal  $i$  at time  $t$ .

$C_i^t$  is total index adjusting parameter for scrap metal  $i$  from all scrap yard at time  $t$ .

$W_{ij}^t$  is the weight of price scrap yard  $j$  paid for scrap metal  $i$  at time  $t$ .

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$P_{ij}^t$  is price scrap yard  $j$  paid for scrap metal  $i$  at time  $t$ .

$I_i^t$  is the price index value of scrap metal  $i$  at time  $t$ .

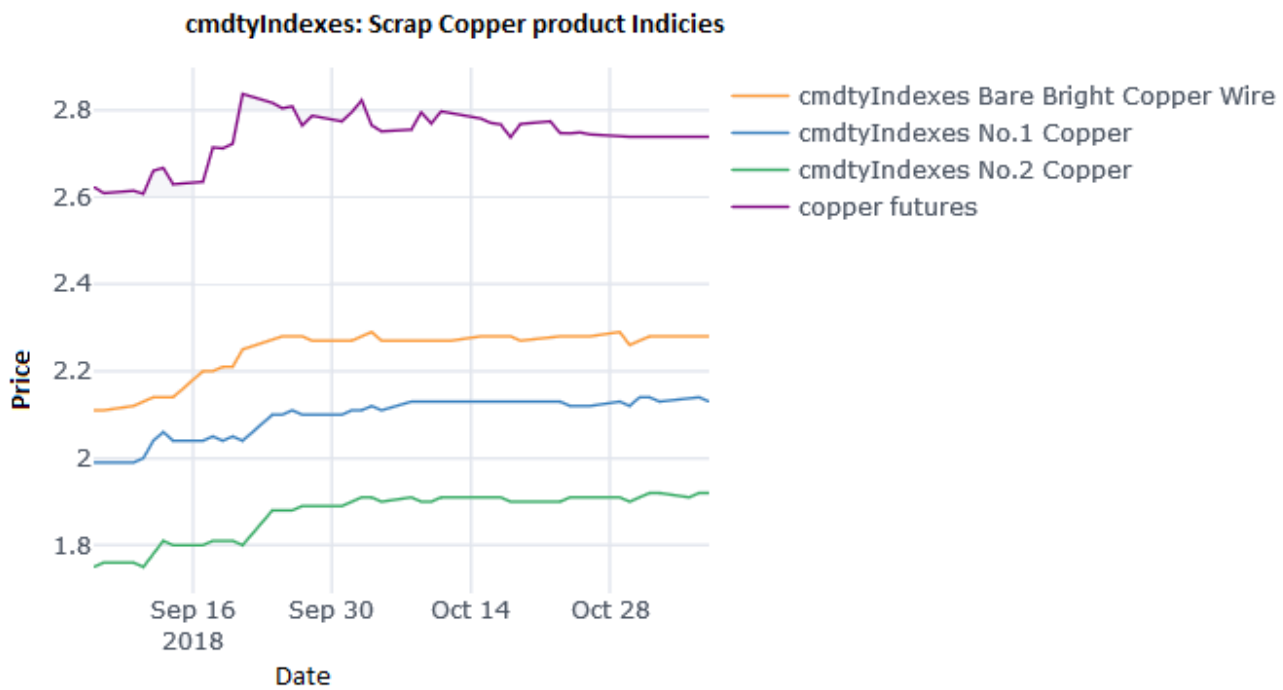
# Appendices

Included in the appendix are samples of historical price performance of certain scrap copper metal indices relative to copper future prices.

An overview of cmdtyIndexes data coverage by geographic region is included.

## I Historical Scrap metal Indices Sample

Figure 1: Sample cmdtyIndexes Scrap copper Price Indices





## About cmdty

cmdty delivers the data, solutions, and insights that commodity professionals need to drive their business. Our offerings are built for the most demanding of users - and are designed to be Smart, Transparent, and easily integrated into any client solution.

## Contact Information

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