# Toxic Substance Reduction – Progress Report: 2020

## Copper

Facility-level quantification data, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 1.

| Table 1: Summary - Facility Level Quantifications for Copper | | |
|---|---|---|
| **Form of Involvement** | **2019 Amount of Substance (kg)** | **2020 Amount of Substance (kg)** |
| Enters the facility (use): | U: 82,783 kg | U: 96,689 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 0 kg | 0 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed (on site) by the facility: | 0 kg | 0 kg |
| Disposed (off site) by the facility: | Wastewater: 3.20 kg | Wastewater: 2.15 kg |
| Transferred (for recycling) from the facility: | TR: 771 kg | TR: 752 kg |
| Contained in product that leaves the facility: | P: 82,008 kg | P: 95,935 kg |

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 1

It has been assumed that the total steel tube processed is equal to the total steel purchased in 2020; this assumption may not accurately reflect the total copper actually used in 2020 as the amount of materials containing copper carried over from 2019, and what remained in storage for use in 2020, was unknown at the time of writing this progress report. TI Automotive attributed the general change in annual production levels from 2019 to 2020 for the variance in the quantities presented in Table 1. The copper masses disposed with waste water, transferred for recycling, and contained in final product were within the expected range of variance for 2019 and 2020.

## REDUCTION OBJECTIVES

TI Automotive does not intend to reduce the amount of copper at this facility. The technical and economical feasibility analyses for potential toxics reduction options for copper usage at TI Automotive resulted in the identification of zero potentially-feasible options at the time of preparing the TSRP. TI Automotive is, however, committed to ensuring copper is used in the most responsible and efficient manner. No amendments were made to the current toxic substance reduction plan for copper in 2020.

## CONFIRMATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Copper

Derek McDonald
*Plant Manager*
TI Automotive Canada Inc.

TI Fluid Systems

# Toxic Substance Reduction – Progress Report: 2020

## Hexavalent Chromium (Hex-Cr)

### FACILITY-WIDE ACCOUNTING INFORMATION

Facility-level quantification data for hex-Cr, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 2.

**Table 2: Summary - Facility Level Quantifications for Hex-Cr**

| Form of Involvement | 2019 Amount of Substance (kg) | 2020 Amount of Substance (kg) |
|---|---|---|
| Enters the facility (use): | Utp = 629 kg | Utp = 666 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 171.0 kg | 137.0 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed (on site) by the facility: | 0 kg | 0 kg |
| Disposed (off site) by the facility: | MHC: 8.0 kg, Wastewater: 0.16 kg | MHC: 10.0 kg, Wastewater: 0.23 kg |
| Transferred (for recycling) from the facility: | 11.0 kg | 9.0 kg |
| Contained in product that leaves the facility: | P: 609.4 kg | P: 646.3 kg |

Table Notes: $U_{tp}$ = Used steel strip and steel tube with hexavalent chromium within the six Tube-Production Processes
$U_p$ = Used hexavalent chrome in a chromium plating bath within the Plating Process
MHC = Metal Hydroxide Cake (waste generated from on-site wastewater treatment process)
kg = kilograms

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 2

The change in the mass of hex-Cr used in steel strip is attributed to the expected general change in annual production level from 2019 to 2020. Hex-Cr used in the chromium plating bath has been phased out from plating processes at TI Automotive as of 2012. The change in masses of hex-Cr released to air, disposed at an off-site landfill and with wastewater, transferred for recycling, and contained in product were within the expected range of variance for 2019 and

2020. It should be noted that since the amount of materials containing hex-Cr carried over from 2019, and what remained in storage for use in 2020, was unknown, it is assumed that the total steel tube processed is equal to the total steel purchased in 2020.

**REDUCTION OBJECTIVES**

TI Automotive's goal for Hex-Cr, as outlined in the current TSRP, is to eliminate:

- 100% of hexavalent chromium-containing solution introduced to the plating process.
- 0.7% of hexavalent chromium disposed to hazardous waste,
- 0.6% of hexavalent chromium recycled at an off-site facility, and
- 0.5% of hexavalent chromium from the finished product at TI Automotive.

As of 2020, the implementation plan for achieving this reduction goal has been achieved.

**TOXIC-SUBSTANCE REDUCTION OPTION (IMPLEMENTED)**

The following option to reduce the use or release of hexavalent chromium was identified in the current TSRP:

- Substitute hexavalent chromium in the plating bath with trivalent chromium and has been fully implemented.

Hexavalent chromium reductions due to implementing this option are outlined in Table 3:

| Table 3: Reduction Option - Substitute Hexavalent Chromium with Trivalent Chromium in Plating Bath | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Option(s)** | **Used** | **Created** | **On-Site Releases** | | | **Disposal** | | **Transfer Off-site for Recycling** | **Contained in Product** |
| | | | **Air** | **Water** | **Land** | **On-site** | **Off-site*** | | |
| 2011 (Baseline) | $U_{tp}$=1014.4 kg $U_p$=6.5 kg Total = 1020.9 kg | 0 kg | 256.0 kg | 0 kg | 0 kg | 0 kg | MHC: 101.1 kg Wastewater: 0.3 kg | 69.7 kg | 1058.2 kg |
| 2012 | $U_{tp}$ = 815.0 kg $U_p$ = 3.5 kg Total = 818.9 kg | 0 kg | 154.3 kg | 0 kg | 0 kg | 0 kg | MHC: 201.8 kg Wastewater: 1.3 kg | 71.4 kg | 544.4 kg |
| 2013 | $U_{tp}$ = 774.0 kg $U_p$ = 0 kg total = 774.0 kg | 0 kg | 350.0 kg | 0 kg | 0 kg | 0 kg | MHC: 178.0 kg Wastewater: 4.9 kg | 38.6 kg | 552.9 kg |
| 2014 | $U_{tp}$ = 423.0 kg $U_p$ = 0 kg total = 423.0 kg | 0 kg | 326.0 kg | 0 kg | 0 kg | 0 kg | MHC: 219.0 kg Wastewater: 3.0 kg | 33.0 kg | 167.7 kg |
| 2015 | $U_{tp}$ = 710.0 kg $U_p$ = 0 kg total = 710.0 kg | 0 kg | 320.0 kg | 0 kg | 0 kg | 0 kg | MHC: 17.0 kg Wastewater: 2.0 kg | 19.0 kg | 672.2 kg |
| 2016 | $U_{tp}$ = 794 kg $U_p$ = 0 kg total = 794 kg | 0 kg | 275 kg. | 0 | 0 | 0 | MHC: 13.0 kg Wastewater: 1.0 kg | 30.0 kg | 749.6 kg |
| 2017 | $U_{tp}$ = 633 kg $U_p$ = 0 kg total = 633 kg | 0 kg | 233 kg. | 0 | 0 | 0 | MHC: 14.0 kg Wastewater: 1.0 kg | 27.0 kg | 591.3 kg |
| 2018 | $U_{tp}$ = 638 kg $U_p$ = 0 kg total = 638 kg | 0 kg | 247 kg. | 0 | 0 | 0 | MHC: 11.0 kg Wastewater: 0.9 kg | 13.0 kg | 613.0 kg |
| 2019 | $U_{tp}$ = 629 kg $U_p$ = 0 kg total = 629 kg | 0 kg | 171 kg. | 0 | 0 | 0 | MHC: 8.0 kg Wastewater: 0..16 kg | 11.0 kg | 609.4 kg |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2020 | $U_{tp}$ = 666 kg<br>$U_p$ = 0 kg<br>total = 666 kg | 0 kg | 137 kg. | 0 | 0 | 0 | MHC: 10.0 kg<br>Wastewater: 0..23 kg | 9.0 kg | 646.3 kg |
| Reduction (baseline to 2020) | $U_{tp}$ = 348.4 kg<br>$U_p$ = 6.5 kg | 0 kg | 119 kg | 0 kg | 0 kg | 0 kg | MHC: 91.1 kg<br>Wastewater: 0.07 kg | 60.7 kg | 411.86 kg |
| % Reduction from baseline | $U_{tp}$ = 34.35%<br>$U_p$ = 100% | 0% | 46.48 % | 0% | 0% | 0% | MHC: 90.11%<br>Wastewater: 23% | 87.09% | 38.92% |

Table Notes: $U_{tp}$ = Used steel strip and steel tube with hexavalent chromium within the six Tube-Production Processes
$U_p$ = Used hexavalent chrome in a chromium plating bath within the Plating Process
MHC = Metal Hydroxide Cake (waste generated from on-site wastewater treatment process)
kg = kilograms

The current TSRP indicates that the solution containing hex-Cr used in the zinc plating bath line has been phased out in 2012; 100% reduction in the hex-Cr $U_p$ quantity has been achieved. This reduction, along with the change in masses of hex-Cr released to air, disposed at an off-site landfill and with wastewater, and transferred for recycling were within the expected range of variance for 2019 and 2020. No additional actions were taken in 2020 to reduce the use, creation, discharge to air, land, or water of hex-Cr at TI Automotive. The steps taken in 2020 to reduce hex-Cr at TI Automotive are consistent with those outlined in the current TSRP. No amendments were made to the current toxic substance reduction plan for hex-Cr in 2020.

**CONFIRMATION BY HIGHEST RANKING EMPLOYEE**

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Hexavalent Chromium

Derek McDonald
*Plant Manager*
TI Automotive Canada Inc.

# Toxic Substance Reduction – Progress Report: 2020

## Hydrochloric Acid

### FACILITY-WIDE ACCOUNTING INFORMATION

Facility-level quantification data for hydrochloric acid, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 4.

**Table 4: Summary - Facility Level Quantifications for Hydrochloric acid**

| Form of Involvement | 2019 Amount of Substance (kg) | 2020 Amount of Substance (kg) |
|---|---|---|
| Enters the facility (use): | U: 28,340 kg | U: 31,656 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 196 kg | 188 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed (on site) by the facility: | 0 kg | 0 kg |
| Disposed (off site) by the facility: | 0 kg | 0 kg |
| Transferred (for recycling) from the facility: | 0 kg | 0 kg |
| Contained in product that leaves the facility: | 0 kg | 0 kg |
| Destroyed by process(es) at the facility | 28,144 kg | 31,468 kg |

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 4

The general change in annual production levels from 2019 to 2020 accounts for the variance in the quantities used, released to air, and destroyed by processes at the facility.

### REDUCTION OBJECTIVES

TI Automotive does not intend to reduce the amount of hydrochloric acid used at this facility. The technical and economical feasibility analyses for potential toxics reduction options for hydrochloric acid usage at TI Automotive resulted in the identification of zero potentially-feasible options at the time of preparing the TSRP. TI Automotive is, however, committed to ensuring hydrochloric acid is used in the most responsible and efficient manner. No amendments were made to the current toxic substance reduction plan for hydrochloric acid in 2020.

## CONFIRMATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Hydrochloric Acid

Derek McDonald
*Plant Manager*
TI Automotive Canada Inc.

# Toxic Substance Reduction – Progress Report: 2020

## Nickel

### FACILITY-WIDE ACCOUNTING INFORMATION

Facility-level quantification data for Nickel, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 5.

**Table 5: Summary - Facility Level Quantifications for Nickel**

| Form of Involvement | 2019 Amount of Substance (kg) | 2020 Amount of Substance (kg) |
|---|---|---|
| Enters the facility (use): | U: 13,278 kg | U: 11,311 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 171.0 kg | 137 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed of (on-site) by the facility: | 0 kg | 0 kg |
| Disposed of (off-site) by the facility: | Wastewater: 0.35 kg | Wastewater: 0.68 kg |
| Transferred (for recycling) from the facility: | 371 kg | 257 kg |
| Contained in product that leaves the facility: | P: 12,735 kg | P: 10,916 kg |

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 5

It is assumed that the total steel tube processed is equal to the total steel purchased in 2020; this assumption may not accurately reflect the total nickel actually used in 2020 as the amount of materials containing nickel carried over from 2019, and what remained in storage for use in 2020, was unknown to the writer at the time of writing this progress report. TI Automotive attributed the general change in annual production levels from 2019 to 2020 for the variance in the quantities presented in Table 5. The nickel masses disposed with waste water, transferred for

recycling, and contained in final product were within the expected range of variance for 2019 and 2020.

## REDUCTION OBJECTIVES

TI Automotive does not intend to reduce the amount of nickel at this facility. The technical and economical feasibility analyses for potential toxics reduction options for nickel usage at TI Automotive resulted in the identification of zero potentially-feasible options at the time of preparing the TSRP. TI Automotive is, however, committed to ensuring nickel is used in the most responsible and efficient manner. No amendments were made to the current toxic substance reduction plan for nickel in 2019.

## CONFIRMATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Nickel

Derek McDonald
*Plant Manager*
TI Automotive Canada Inc.

# Toxic Substance Reduction – Progress Report: 2020

## Sulphuric Acid

### FACILITY-WIDE ACCOUNTING INFORMATION

Facility-level quantification data for sulphuric acid, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 6.

**Table 6: Summary - Facility Level Quantifications for Sulphuric acid**

| Form of Involvement | 2019 Amount of Substance (kg) | 2020 Amount of Substance (kg) |
|---|---|---|
| Enters the facility (use): | U: 32,033 kg | U: 29,962 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 725 kg | 695 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed of (on-site) by the facility: | 0 kg | 0 kg |
| Disposed of (off-site) by the facility: | 0 kg | 0 kg |
| Transferred (for recycling) from the facility: | 0 kg | 0 kg |
| Contained in product that leaves the facility: | 0 kg | 0 kg |
| Destroyed by process(es) at the facility | 31,308 kg | 29,267 kg |

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 6

The general change in annual production levels from 2019 to 2020 accounts for the variance in the quantities used, released to air, and destroyed by processes at the facility.

## REDUCTION OBJECTIVES

TI Automotive does not intend to reduce the amount of sulphuric acid used at this facility. The technical and economical feasibility analyses for potential toxics reduction options for sulphuric acid usage at TI Automotive resulted in the identification of zero potentially-feasible options at the time of preparing the TSRP. TI Automotive is, however, committed to ensuring sulphuric acid is used in the most responsible and efficient manner. No amendments were made to the current toxic substance reduction plan for sulphuric acid in 2020.

## CONFIRMATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Sulphuric Acid

Derek McDonald
*Plant Manager*
TI Automotive Canada Inc.

TI Fluid Systems

# Toxic Substance Reduction – Progress Report: 2020

## Zinc

### FACILITY-WIDE ACCOUNTING INFORMATION

Facility-level quantification data, determined as a result of the toxics substance accounting performed at TI Automotive for the years 2019 and 2020, is outlined in Table 7.

**Table 7: Summary - Facility Level Quantifications for Zinc**

| Form of Involvement | 2019 Amount of Substance (kg) | 2020 Amount of Substance (kg) |
|---|---|---|
| Enters the facility (use): | U: 99,155 kg | U: 77,261 kg |
| Created at the facility: | 0 kg | 0 kg |
| Released (air) from the facility: | 0 kg | 0 kg |
| Released (land) from the facility: | 0 kg | 0 kg |
| Released (water) from the facility: | 0 kg | 0 kg |
| Disposed of (on-site) by the facility: | 0 kg | 0 kg |
| Disposed of (off-site) by the facility: | MHC: 7,911 kg,<br>Wastewater: 5.50 kg | MHC: 10,355 kg,<br>Wastewater: 5.29 kg |
| Transferred (for recycling) from the facility: | Zn Stubs: 0.0 kg<br>Scrap: 1,468 kg | Zn Stubs: 0.0 kg<br>Scrap: 1,346 kg |
| Contained in product that leaves the facility: | P: 89,771 kg | P: 65,555 kg |

### COMPARISON OF THE RESULTS PRESENTED IN TABLE 7

TI Automotive attributed the general change in annual production levels from 2019 to 2020 for the increased quantities of Zinc entering the facility and contained in product, as presented in Table 1. The zinc masses disposed as metal hydroxide cake (MHC), disposed with waste water, and transferred for recycling were within the expected range of variance for 2019 and 2020.

## REDUCTION OBJECTIVES

TI Automotive does not intend to reduce the amount of zinc at this facility. The technical and economical feasibility analyses for potential toxics reduction options for zinc usage at TI Automotive resulted in the identification of zero potentially-feasible options at the time of preparing the TSRP. TI Automotive is, however, committed to ensuring zinc is used in the most responsible and efficient manner. No amendments were made to the current toxic substance reduction plan for zinc in 2020.

## CONFIRMATION BY HIGHEST RANKING EMPLOYEE

As of June 1, 2021, I, Derek McDonald, confirm that I have read the report on the toxic substance reduction plan for the toxic substance referred to below and am familiar with its contents, and, to my knowledge, the information contained in that report and this annual progress report is factually accurate and, complies with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

Zinc

Derek McDonald
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TI Automotive Canada Inc.