

|                                                                                                                                                                                                                                                                                                                                         |                                  |                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------------------------------------|
| <b>NAVISTAR, INC.</b>                                                                                                                                                                                                                                                                                                                   |                                  |                                            |
| <b>Material, Parts, and Process Specifications<br/>(MPAPS)</b>                                                                                                                                                                                                                                                                          |                                  | NUMBER:<br><b>MPAPS P-9602</b>             |
|                                                                                                                                                                                                                                                                                                                                         |                                  | Former Designation: <b>TMS-9602</b>        |
| <b>Reporting Recycled Content</b>                                                                                                                                                                                                                                                                                                       |                                  | CURRENT REV No.:<br><b>1610</b>            |
|                                                                                                                                                                                                                                                                                                                                         |                                  | DATE:<br><b>Oct. 2016</b>                  |
| WRITTEN/EDITED BY:<br><b>W. Cook</b>                                                                                                                                                                                                                                                                                                    | APPROVED BY:<br><b>R. Goluch</b> | SUPERSEDES:<br><b>Rev. A-1 – Aug. 2001</b> |
| <b>PRINTED COPIES OF THIS DOCUMENT MUST BE VERIFIED FOR CURRENT REVISION</b>                                                                                                                                                                                                                                                            |                                  |                                            |
| <i>This specification may involve hazardous materials, equipment, and procedures. This specification does not purport to address all of the safety issues associated with its use. The user is responsible to consult appropriate safety and health practices and to determine the applicability of regulatory limits prior to use.</i> |                                  |                                            |

## 1.0 APPLICATION

This specification applies to all materials, parts, components, subassemblies, assemblies, and modules whose specifications, or purchase contracts/orders, or engineering drawings, reference this specification and are supplied to Navistar for use in the production of Navistar Truck products.

## 2.0 SCOPE

This specification defines recycled content and indicates how the **recycled content** of materials, parts, components, subassemblies, assemblies, and modules supplied to Navistar should be reported when required. Suppliers shall transmit a report containing data on part weight and recycled content, by part number, to Navistar. Copies of the report and supporting data are to be retained by the supplier and available for inspection when requested or as required.

## 3.0 REFERENCE DOCUMENTS

Unless otherwise specified the latest issue of all referenced standards shall apply. The following Specifications, Standards, and Regulations are referenced in this specification.

CFR 16, Part 260  
ASTM D 1418  
SAE J 1344

## 4.0 GENERAL REQUIREMENTS

### 4.1 Rules For Determination And Reporting Of Recycled Content

The recycled content report must be in conformance with the Federal Trade Commission guidelines (**CFR 16, Part 260**) for environmental advertising and marketing claims. Section 5 of the FTC Act provides FTC control of advertising and marketing claims. The use of deceptive advertising claims affecting commerce is unlawful. The FTC guidelines state that a recycled claim may be made **only** for those materials that have been recovered or otherwise diverted from the solid waste stream, either during the manufacturing process (pre-consumer or secondary) or after consumer use (post-consumer). To claim pre-consumer recycled content, it must be substantiated that the material (being recycled)

|                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards.<br>Suppliers are required to assume all patent liability. ©2016 by Navistar, Inc. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

OCTOBER 2016

|                                |                                             |                          |
|--------------------------------|---------------------------------------------|--------------------------|
| NUMBER:<br><b>MPAPS P-9602</b> | TITLE:<br><b>Reporting Recycled Content</b> | REVISION:<br><b>1610</b> |
|--------------------------------|---------------------------------------------|--------------------------|

would otherwise have entered the waste stream. **Home scrap** or virgin scrap, i.e., those materials which are ordinarily collected (scraps from trimming operations, etc.) and are routinely reprocessed for combination with virgin material for reuse in further production of the same product within the original manufacturing process, **is not counted as recycled content** because this material would not have ordinarily entered the waste stream.

**4.2** For products, components, assemblies and modules comprised of different parts and materials, such that the component is **partially** made of recycled materials, a worksheet should be used to determine the recycled content of the component. A worksheet for the determination of the recycled content of a mid- range diesel engine is included as an example. Percentages used for reporting recycled content should be weighted values representing an **average annual value**. The recycled content claim should be **adequately qualified** to avoid deception about the amount of recycled content in the finished product.

**4.3** In the case of truck production, where materials, parts, subassemblies, and components, are supplied from several sources and the amount of recycled content from each source varies, an **annual weighted average** of recycled content in the product of each of the sources **may be used** to report the **annual average recycled content** of the truck.

#### **4.4 Guide To Recycled Content**

##### **4.4.1 Ferrous Castings**

Most ferrous castings produced domestically are made from metals melted in electric furnaces using melt charges of purchased scrap metal, virgin ferroalloy additives and pig iron, and internal returns. That portion (percentage) of the charge which consists of **purchased scrap** is counted as **post consumer recycled content**. That portion (percentage) of the charge which consists of **internal returns, less the amount of “home scrap”**, is counted as **secondary** (preconsumer) recycled content. Gray iron, ductile iron, austempered ductile iron, and steel castings made in domestic foundries will generally have post consumer recycled contents of 30% to 70%. Truck parts produced from cast metals include engine blocks, transmission cases, housings, cast wheels, spring suspension brackets, etc.

##### **4.4.2 Steel Forgings, Bars, Bar Shapes, Rods, and Wire**

Most domestic bar, and bar product steel mills use electric furnace melting practices with **100% cold** metal charges. The cold metal charge typically consists of 70% to 90% purchased scrap and 5% to 25% internal returns with up to 5% virgin ferroalloy additives. The purchased scrap percentage is reported as **post consumer recycled content**. That portion (percentage) of the charge which consists of **internal returns, less the amount of “home scrap”**, is counted as **secondary** (preconsumer) recycled content. Truck parts produced from these bar products include most forged and machined parts such as engine and transmission gears and shafts, steering arms and knuckles, rear axle and PTO gears and shafts, bearings, drivelines, front and rear axles, seamless tubes, fasteners, and springs, etc.

##### **4.4.3 Steel Products, Flat Rolled**

Most domestic steel mills providing flat rolled products for automotive applications use a BOF practice with continuous slab casting. Pig iron is produced from virgin materials in a blast furnace and the hot metal is transferred to the BOF. The melt charge typically consists of 70% to 80% virgin hot metal with

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2016 by Navistar, Inc.

OCTOBER 2016

|                                |                                             |                          |
|--------------------------------|---------------------------------------------|--------------------------|
| NUMBER:<br><b>MPAPS P-9602</b> | TITLE:<br><b>Reporting Recycled Content</b> | REVISION:<br><b>1610</b> |
|--------------------------------|---------------------------------------------|--------------------------|

a scrap metal charge of 25 to 30%, and 1-2% of virgin ferroalloys. The scrap charge is typically reported as 60% to 80 % purchased scrap and 20% to 40% internal returns. The amount of purchased scrap is reported as **post consumer recycled content**. That portion of the scrap charge which consists of **internal returns, less the amount of “home scrap”**, is counted as **secondary** (preconsumer) recycled content. Truck parts made from flat rolled steel products include chassis frame rails, cross members, fifth wheels, flat brackets, wheels, and cab sheet metal panels, etc.

#### **4.4.4 Wrought Aluminum Products**

Domestic wrought aluminum products including sheet, plate, bars and extrusions, contain 30% to 65% recycled content. The recycled content of wrought products varies between specific aluminum alloys and between different producers. At present, the Aluminum Association has not developed a sufficient statistical data base to provide a general recycled content of aluminum by alloy grade. Depending on review of the supplier's responses in the recycled content reports, a recycled content between 30-65% may be reported for wrought aluminum products. Truck parts made from wrought aluminum include aluminum cab panels and extrusions, wheels, hubs, and fuel tanks, etc.

#### **4.4.5 Cast Aluminum Products**

Cast aluminum products have a higher recycled content than wrought products. This is especially true for common automotive grades of cast aluminum. A significant infrastructure for recycling the automotive aluminum castings is developing under current favorable economic conditions. For cast aluminum grades 308, 328, and 356, recycled contents of 60% to 80% are common. Truck parts made from cast aluminum include, cast wheel hubs, cab mounting brackets, clutch and brake pedals, steering column housings, and transmission cases, etc.

#### **4.4.6 Rubber And Elastomers**

Thermoplastic elastomers are recyclable while thermoset rubber and elastomers have limited recyclability. At present, the recycled content of most rubber parts is low. Tires contain 1% recycled rubber and 2% recycled steel by weight. Additional items may be disclosed as Recycled Content Forms are returned by suppliers.

#### **4.4.7 Plastic**

At present, the recycled content of currently used plastic parts and components is not clearly known. Thermoplastic parts may have a recycled content of 5-25%, with a lower content for thermosets, but suppliers will have to report recycled content of specific parts or families of parts in order to provide a more accurate determination for reporting purposes.

### **4.5 Reporting Recycled Content**

Suppliers of materials, parts, components, subassemblies and assemblies to International will report the recycled content of their product(s) when request to do so by filling out the Recycled Content Report Form. The recycled content value reported should represent an annual weighted average of the recycled content in the product supplied. Both the post consumer recycled content and secondary recycled contents should be reported. The values reported for the recycled content should be **reviewed periodically** and updated as the recycling technology advances and improvements in manufacturing processes are made. Material description nomenclature for elastomers shall be per ASTM D-1418 and for polymers shall be per SAE J1344

This document is restricted and may not be sent outside Navistar, Inc. or reproduced without permission from Corporate Technical Standards. Suppliers are required to assume all patent liability. ©2016 by Navistar, Inc.

OCTOBER 2016