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Earth-moving machinery — Recyclability and recoverability — Terminology and calculation method

AS ISO 16714:2021

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Engineers Australia / Mining Electrical and Mining Mechanical Engineering Society
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Earth-moving machinery — Recyclability and recoverability — Terminology and calculation method

First published as AS ISO 16714:2021.

Preface

This Standard was prepared by the Standards Australia Committee ME-063, Earthmoving Equipment.

The objective of this document is to specify a method, and defines related terms, for calculating the recyclability rate and the recoverability rate of earth-moving machinery as defined in ISO 6165, each expressed as a percentage by mass (mass fraction in percent) of the machine, which can potentially be recycled, reused or both (recyclability rate), or recovered, reused or both (recoverability rate).

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Foreword

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ISO 16714 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 3, *Machine characteristics, electrical and electronic systems, operation and maintenance*.

Introduction

End-of-life machines contribute to the total volume of waste to be treated. As part of the machine life cycle, it is essential that recovery issues be taken into consideration during the design phase to ensure environmentally sound treatment.

Today, recycling has to be taken into account in addition to safety, emissions and fuel consumption when designing a machine. Consequently, there is need for an indicator to evaluate the ability and potential of new machines to be recovered/recycled.

The method for calculating recyclability and recoverability rates specified by this International Standard (similar to the one specified in ISO 22628:2002 for road vehicles) is based on four main stages inspired by the treatment of end-of-life machines. Recyclability/recoverability rates depend on the design and material properties of new machines and on the consideration of proven technologies — those technologies which have been successfully tested, at least on a laboratory scale, in this context.

The calculation method of this International Standard cannot in detail reflect the real process that will be applied to the machine at the end of its life.

NOTES

Australian Standard®

Earth-moving machinery — Recyclability and recoverability — Terminology and calculation method

1 Scope

This International Standard specifies a method, and defines related terms, for calculating the recyclability rate and the recoverability rate of earth-moving machinery as defined in ISO 6165, each expressed as a percentage by mass (mass fraction in percent) of the machine, which can potentially be

— recycled, reused or both (recyclability rate), or

— recovered, reused or both (recoverability rate).

NOTE Remanufacturing is included in re-use.

The calculation can be performed by the machine manufacturer from the time when a machine is initially put on the market.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6016, *Earth-moving machinery — Methods of measuring the masses of whole machines, their equipment and components*

ISO 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6016 and the following apply.

3.1
dismantlability
ability of component parts to be removed from the machine

Note 1 to entry: Adapted from ISO 22628:2002, definition 3.5.

3.2
end-of-life machine
machine that has completed its useful life and is taken out of service for disposal

3.3
recovery
reprocessing in a production process of the waste materials for the original purpose or for other purposes, together with processing as a means of generating energy

[SOURCE: ISO 22628:2002, definition 3.4]

Note 1 to entry: See Figure 1.

3.4
recoverability
ability of component parts, materials or both that can be diverted from an end-of-life stream to be recovered

[SOURCE: ISO 22628:2002, definition 3.9]