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# Refuse collection vehicles — Waste odour and leachate prevention and control

*Véhicules de collecte de déchets — Prévention et maîtrise des odeurs et des jus émanant des déchets*



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# Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 297, *Waste collection and transportation management*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

# Introduction

Waste odour and leachate emitted from refuse collection vehicles (RCVs) have a negative impact on living environments and can be a cause of complaints by residents. Proper control of waste odour and leachate has the potential to increase the acceptance of liquids and smells from waste collection.

Odour emitted from waste – particularly organic waste – has a negative impact on living environments, such as contributing to a feeling of discomfort.

Leachate emitted from the liquid component of waste can be a cause of water contamination and also odour if leaked outside RCVs.

This document provides support, advice and guidance to the owners of RCVs, waste service providers, vehicle manufacturers, suppliers, maintenance providers, consultants, authorities and others on properly controlling waste odour and leachate emitted from RCVs.

# Refuse collection vehicles — Waste odour and leachate prevention and control

## 1 Scope

This document specifies methods for preventing the spread of waste odour and the leakage of leachate during the collection and transportation of waste in refuse collection vehicles (RCVs), when the control of the spread of waste odour and leakage of leachate is required in order to protect the surrounding environment.

This document is not applicable in cases when it is not necessary to provide control of waste odour or leachate due to the composition or packaging of waste and there is no influence on the environment due to the loaded waste.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 24161:—,[1)] *Waste collection and transportation management — Vocabulary*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 24161 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

**3.1**
**refuse collection vehicle**
**RCV**
purpose-built vehicle for the collecting and transporting of waste or recyclables in containers, whereby the refuse or recyclables are transferred via differential air pressure, a lifting device, mechanical means or by hand

Note 1 to entry: An RCV can be fitted with sullage tanks, usually below the RCV's *body* (3.6), to contain *leachate* (3.4) for spillage control during transportation. The RCV can also be fitted with internet of things or smart solutions as part of an integrated waste management system. Waste or recyclables that are collected by RCVs are sent for further processing to a recycling facility or material recovery facility, or to be disposed of at incineration plants or landfill.

[SOURCE: ISO 24161:—, 3.43]

**3.2**
**waste odour**
unpleasant smell caused by waste during the whole process of waste collection, transportation and disposal

1) Under preparation. Stage at the time of publication: ISO/DIS 24161:2022.

**3.3**
**odour control**
controlling of the spread of odour emitted from collected waste

Note 1 to entry: Measures to control waste odour include the use of enzymes and masking agents.

**3.4**
**leachate**
contaminated water leached from waste, possibly including rainwater that has infiltrated the *body* (3.6) of the *refuse collection vehicle* (3.1)

**3.5**
**leachate tank**
tank for collecting and storing *leachate* (3.4)

Note 1 to entry: See Annex A and Figures A.5 and A.6.

**3.6**
**body**
part of the bodywork that retains the loaded waste

**3.7**
**tailgate**
structure connected to the rear of the *body* (3.6) that is equipped with a *load opening* (3.8) for loading waste and holds back waste retained inside the body

Note 1 to entry: An enclosed tailgate cover fits at the back of *refuse collection vehicles* (3.1) to mitigate *waste odour* (3.2) and prevent accidental spillage during transportation.

**3.8**
**load opening**
opening for loading waste into the *tailgate* (3.7)

**3.9**
**loading system**
mechanism and action of manually or mechanically loading waste into the *load opening* (3.8) on the rear and mechanically transferring it into the bodywork

Note 1 to entry: The waste can be transferred to the bodywork with or without a *hopper* (3.11).

**3.10**
**leachate-scattering prevention device**
device that prevents the scattering of *leachate* (3.4) from the *load opening* (3.8)

**3.11**
**hopper**
compartment into which waste is loaded manually or mechanically and transported into the bodywork

Note 1 to entry: The hopper can be a separate compartment or part of the bodywork or *tailgate* (3.7).

## 4 Structural requirements

### 4.1 General overview

The RCV shall be structured such that waste odour and leachate emitted from waste do not scatter or leak outside the RCV when the RCV is collecting and transporting waste.

## 4.2 Leachate collection

The bottom surface of the body shall be sloped or shaped to collect leachate inside the body and allow it to flow through drainage holes into a leachate tank(s).

The drainage hole diameter should be at least 8 mm to prevent clogging.

## 4.3 Leachate storage capacity

The capacity and the location of the leachate tank(s) and the construction of the bodywork shall be such that stored leachate does not overflow during waste collection according to waste composition and shall satisfy other conditions, such as minimum ground clearance, overall vehicle dimensions (width), interference with other parts of the vehicle or axle loads.

## 4.4 Prevention of leakage or scattering of leachate and discharge of leachate

### 4.4.1 Prevention of leakage of leachate and discharge of leachate from the leachate tank

The opening for discharging leachate stored in the leachate tank should be able to remain closed with a cover or valve and should be sealed in order to prevent leakage of leachate during work and while the RCV is in motion.

EXAMPLE Installation of door or discharge valve at the opening.

NOTE See Figure A.6.

### 4.4.2 Prevention of leachate leakage in the body

The opening for discharging leachate stored in the body should be able to remain closed with a cover or valve and should be sealed in order to prevent leakage of leachate during work and while the RCV is in motion.

EXAMPLE Installation of door or discharge valve at the opening.

### 4.4.3 Prevention of leachate scattering in the hopper

The leachate-scattering prevention device should be used to prevent leachate from scattering when the loading system pushes waste from the hopper into the body.

EXAMPLE Attaching a rubber sheet to the tip of the press plate, see Figure A.4.

## 4.5 Prevention of the spread of waste odour

### 4.5.1 Odour control at openings for body maintenance

If the body contains an opening for maintenance, it shall have sealing materials to minimize the escape of waste odour.

EXAMPLE Door and sheets covering opening.

NOTE See Figure A.1.

### 4.5.2 Odour control at the load opening

The load opening should have a design or function to prevent the spread of waste odour from the load opening while the RCV is moving or is stopped when loading work is not being done.

Besides using flaps or doors to close the load opening during inactivity, a ventilation system can be used. This ventilation system shall be able to provide an air pressure lower than ambient air pressure

in the open area of the load opening. The exhaust of the air ventilation system shall be filtered by a filter that eliminates waste odour.

EXAMPLE Door or tailgate cover and sheets covering opening.

NOTE See Figures A.2 and A.3.

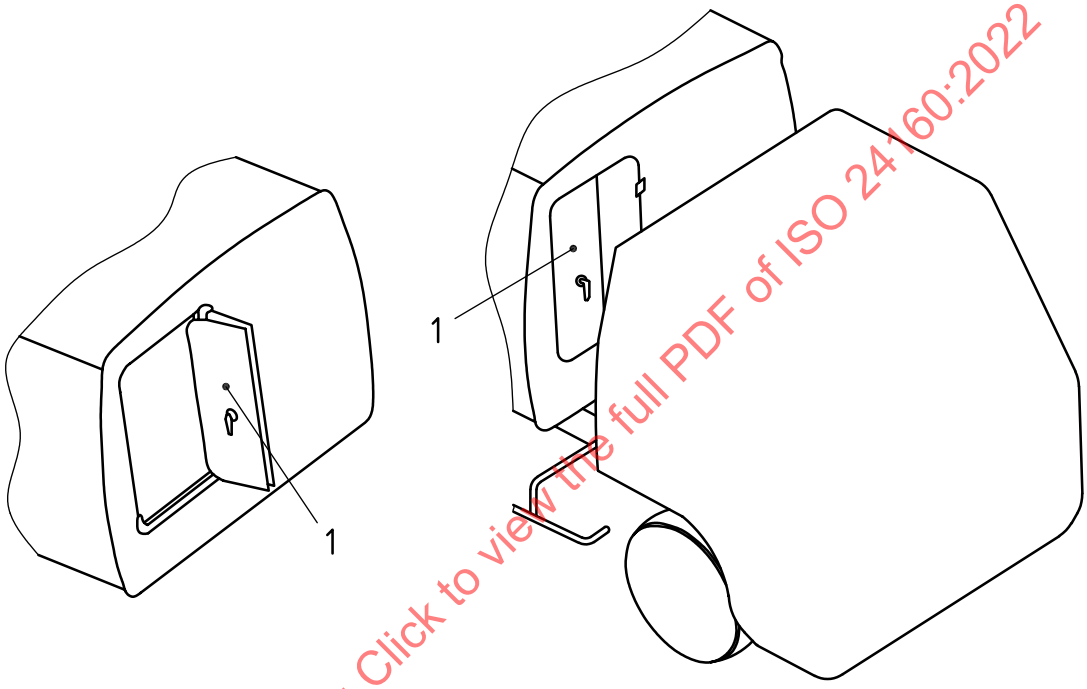
## 5 Requirements for maintenance in the instruction manuals

Leachate and waste odour can leak out when sealants deteriorate; therefore, instruction manuals shall clearly set out the recommended timing for replacement of the sealing to prevent leakage.

# Annex A
(informative)

# Names of vehicle parts and mechanisms

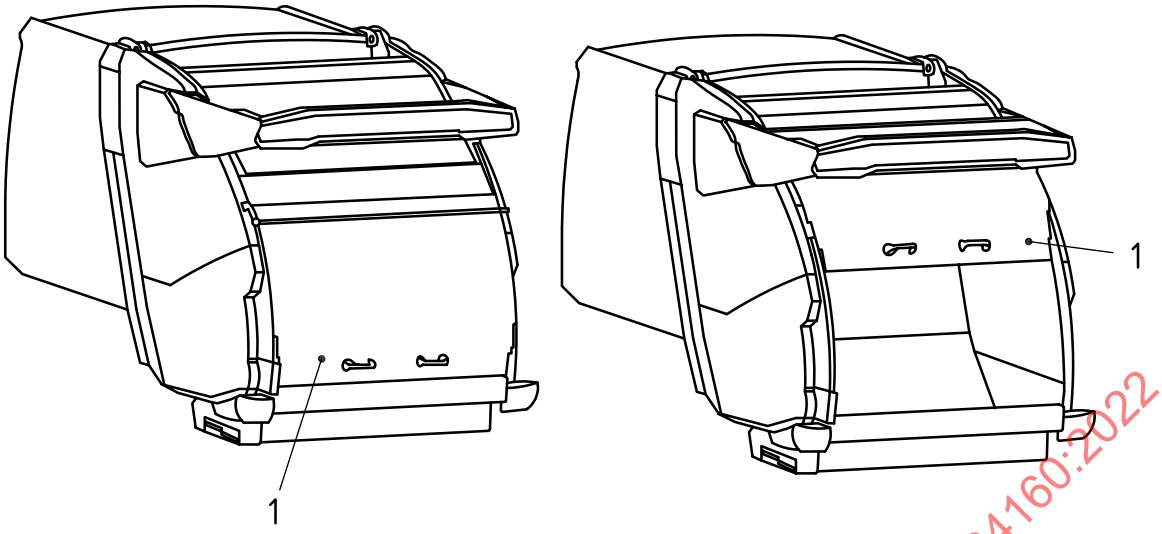
Figures A.1 to A.6 show examples of technical solutions for waste odour and leachate prevention and control.




**Key**

1 door for waste odour prevention

**Figure A.1 — Door for waste odour prevention (example)**




**Key**

1 cover at load opening

**Figure A.2 — Cover at load opening (example)**

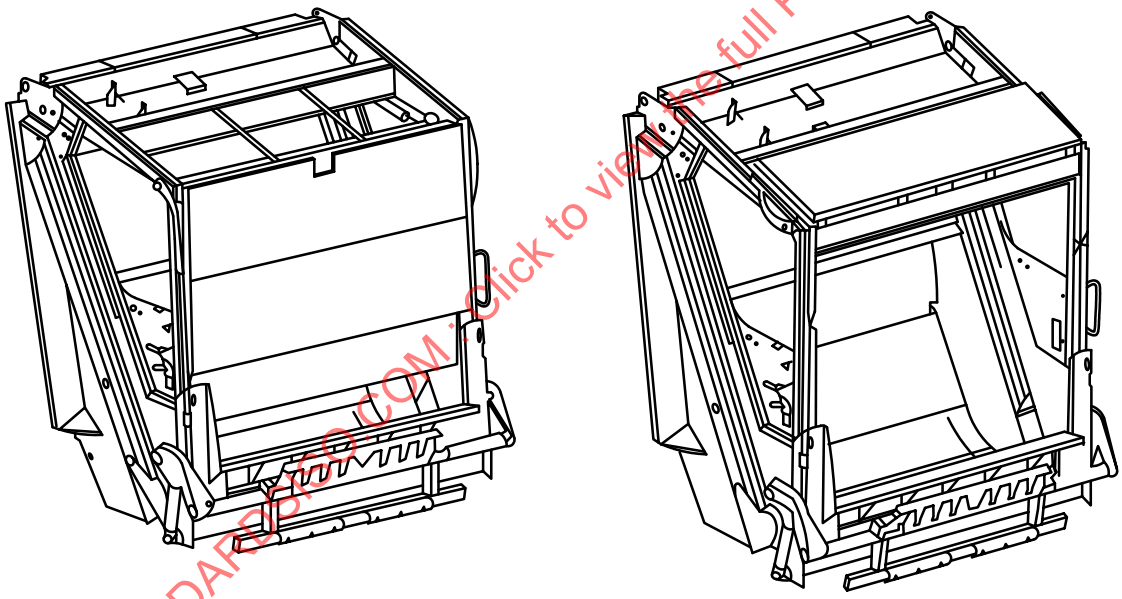
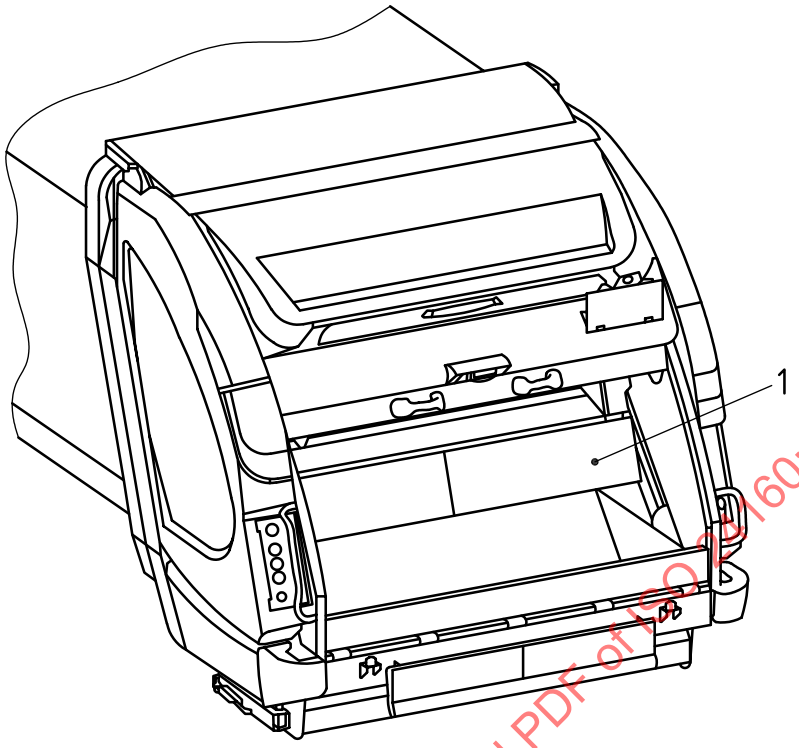


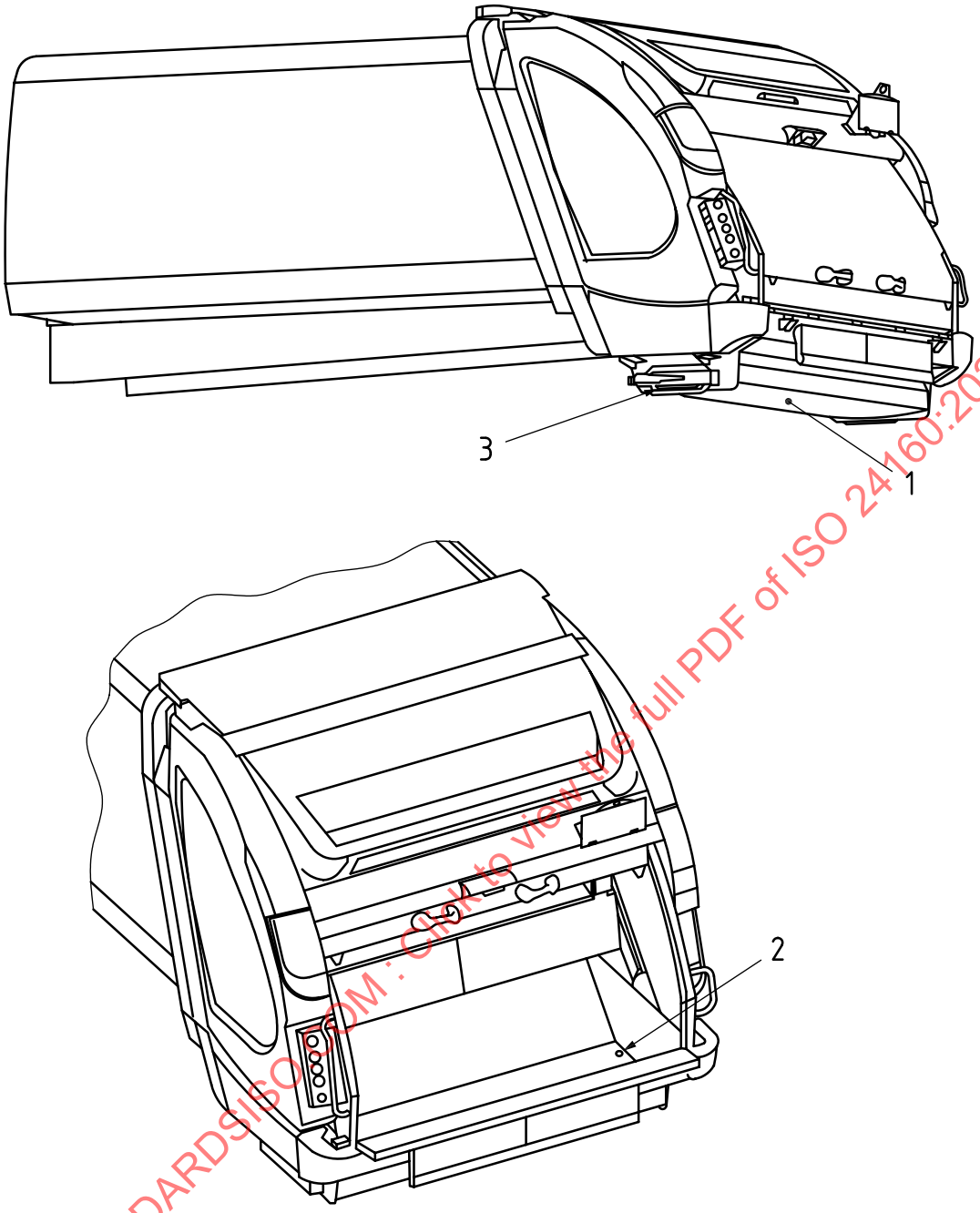
**Figure A.3 — Further tailgate cover (example)**




**Key**

1 rubber sheet at hopper

**Figure A.4 — Rubber sheet at hopper (example)**






**Key**

1 leachate tank
2 drainage hole
3 leachate tank door installed on tailgate

**Figure A.5 — Leachate tank (example)**