



**SLOVENSKI STANDARD**  
**SIST EN 14841:2006**

01-marec-2006

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LPG equipment and accessories - Discharge procedures for LPG rail tankers

Flüssiggas-Geräte und Ausrüstungsteile - Entleerungsverfahren für  
Eisenbahnkesselwagen für Flüssiggas (LPG)

Equipements pour GPL et leurs accessoires - Procédures de déchargement des wagons  
-citernes pour GPL

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**Ta slovenski standard je istoveten z: EN 14841:2005**

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**ICS:**

23.020.20	Posode in vsebniki, montirani na vozila	Vessels and containers mounted on vehicles
45.060.20	Železniški vagoni	Trailing stock

**SIST EN 14841:2006**

**en**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 14841**

December 2005

ICS 23.020.20; 45.060.20

English Version

## LPG equipment and accessories - Discharge procedures for LPG rail tankers

Equipements pour GP et leurs accessoires - Procédures de  
déchargement des wagons-citernes pour GPL

Flüssiggas-Geräte und Ausrüstungsteile -  
Entleerungsverfahren für Eisenbahnkesselwagen für  
Flüssiggas (LPG)

This European Standard was approved by CEN on 26 October 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard (EN 14841:2005) has been prepared by Technical Committee CEN/TC 286 “Liquefied petroleum gas equipment and accessories”, the secretariat of which is held by NSAI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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**EN 14841:2005 (E)****1 Scope**

This European Standard specifies discharge, emergency procedures and handling operations for rail tankers used for the transport of liquefied petroleum gas (LPG).

This European Standard applies to operations where LPG is off-loaded from rail tankers into LPG fixed storage facilities.

This European Standard does not apply to "tank containers" and "batteries of receptacles".

**2 Terms and definitions**

For the purposes of this European Standard, the following terms and definitions apply.

**2.1****LPG (liquefied petroleum gas)**

mixture of predominantly butane or propane with traces of other hydrocarbon gases classified in accordance with UN number 1965, hydrocarbon gases mixture, liquefied, NOS or UN number 1075, petroleum gases, liquefied

NOTE In some countries, UN numbers 1011 and 1978 may also be designated LPG.

**2.2****competent person**

person who, by a combination of training, experience and supervision, is able to make objective judgements on the subject

**2.3****anti-drive-away interlock**

method of ensuring that if the rail tanker is accidentally moved while connected there is no uncontrolled release of LPG

**3 General**

Handling operations such as:

- accepting rail tankers upon arrival;
- off-loading of LPG;
- preparation and returning rail tanker

shall be carried out under the supervision of a competent person (e.g. operator of the site) and shall be in accordance with the site procedures.

**4 Procedures****4.1 General**

Site procedures including emergency procedures shall be available, understood and followed by all persons involved in each operation. This shall be achieved by training and supervision. The responsibilities of the persons involved shall be clearly defined.

The procedures shall include a check of the rail tanker that is to be carried out before it is accepted. This shall include:

- the marking (see Annex B);
- a check of the integrity of the rail tanker;
- a check of tamper evident seals;
- an identification check of LPG quality and grade.

Where deficiencies are found they shall be recorded and reported to the appropriate body (e.g. rail tanker loader) and the rail tanker owner. A rail tanker shall not be off loaded until any necessary remedial work has been completed.

Copies of checklists (see Annex A) and deficiency reports shall be retained.

## 4.2 Discharge procedures/operations

**4.2.1** The rail tanker shall be moved to the discharge area and positioned as required by the site procedures.

**4.2.2** Brakes or other equivalent means shall be applied to prevent unintended movement of the rail tanker during discharge. The site, where the rail tankers are parked for discharging, shall be isolated from other rail traffic. If fitted, anti-drive-away interlocks shall be engaged.

**4.2.3** Operators shall wear appropriate personal protection equipment while carrying out LPG transfer operations.

**4.2.4** The electrostatic potential of the rail tanker and the fixed installation shall then be equalised before the LPG hoses/arms are connected.

**4.2.5** All rail tanker outlets valves and/or foot valves shall be checked to ensure that they are in the closed position.

**4.2.6** Blanking caps or blind flanges shall be removed from the liquid and vapour connections.

**4.2.7** Ensure that the site is safe for discharging LPG and adequate storage capacity is available. Specific requirements for this shall be part of the site procedures.

**4.2.8** Hoses/arms shall be checked for kinks, wear or obvious damage. Fill-couplings and seals shall be examined to ensure compatibility and that no dirt etc. is present before connection.

**4.2.9** Connections shall be properly made before starting to discharge. Hoses/loading arms shall not be fully extended in making the connections. A check shall be made for any sign of leakage before discharging commences. Any leakage shall be rectified before proceeding.

**4.2.10** If the rail tanker is equipped with bottom foot valve(s) an emergency ripcord shall be connected to the rail hook that will shut down the bottom foot valve in the event of unintended movement of the rail tanker.

**4.2.11** Valves shall be opened in the correct sequence as stated by the site procedure.

**4.2.12** The delivery shall be stopped when the maximum fill level in the receiving tank is reached or the rail tanker is empty.

NOTE Transfer rates may need to be reduced to ensure that the maximum fill is not exceeded.

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**4.2.13** Valves shall be closed in the correct sequence as stated in the site procedure and the ripcord shall be disconnected.

**4.2.14** The rail tanker shall be disconnected and hoses stowed or reeled in and blanking caps/blind flanges re-fitted, followed by a visual final inspection of the rail tanker and the discharge equipment.

**4.2.15** Anti-drive-away interlocks shall stay engaged until the rail tanker can be safely moved.

**4.2.16** The connection for equalising the electrostatic potential of the rail tanker and the fixed installation shall not be disconnected until hoses/loading arms are disconnected and stowed.

**4.3 Discharging by pumps**

**4.3.1** When discharging a rail tanker with a pump it is not essential to connect the vapour return line.

**4.3.2** Operating and safety requirements as stipulated by the pump manufacturer shall be adhered to.

**4.3.3** The pumps shall be protected against damage due to dry running/cavitation.

**4.4 Discharging by compressor**

**4.4.1** When discharging a rail tanker using a compressor it is essential to have the vapour return line connected and open before starting the compressor.

**4.4.2** Operating and safety requirements stipulated by the compressor manufacturer shall be adhered to.

**4.4.3** Care shall be taken to avoid exceeding the maximum allowable working pressure of the rail tanker and/or the receiving tank.

**4.4.4** Where vapour recovery is required the liquid outlet valve shall be closed. The compressor valving shall be set for vapour recovery. Care shall be taken not to decrease the pressure in the rail tanker below the pre-defined safe pressure level.

**NOTE** Advantage of any existing pressure differentials should be taken when starting the discharge procedure before starting the compressor.

Negative pressure shall be avoided in the rail tanker because of the danger of air ingress into the rail tanker and possible mechanical damage to the pressure envelope.

**5 Emergency procedure**

The overall site emergency procedures shall at least include the following for the rail tanker off-loading facilities:

- notification/raising of the alarm;
- evacuation plan;
- LPG leakage;
- LPG fire including fire fighting plan;
- accidents;



- return to service;
- incident/accident investigation and corrective actions.

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