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**Economic Commission for Europe****Inland Transport Committee****Working Party on the Transport of Dangerous Goods**

**Joint Meeting of Experts on the Regulations annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) (ADN Safety Committee)**

**Twenty-fifth session**

Geneva, 25–29 August 2014

Item 4 (b) of the provisional agenda

**Proposals for amendments to the Regulations annexed to ADN: Other proposals**

**Special provision 803 for the carriage of UN No. 1361****Transmitted by the Government of Germany<sup>1,2</sup>***Summary*

<b>Executive summary:</b>	Scientific studies into auto-ignition of coal, and accidents that have occurred when transporting coal in Germany, show that the criteria set in the special provision adopted for ADN 2015 do not cover all eventualities in terms of incidents arising from auto-ignition of coal during transport that could take up to 20 days. However, a lower loading temperature would make it possible to extend the transport time.
<b>Action/Decision to be taken:</b>	Amend special provision 803 adopted for ADN 2015, Chapter 3.3.

<sup>1</sup> In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94, ECE/TRANS/2012/12, programme activity 02.7, (A1b)).

<sup>2</sup> Distributed in German by the Central Commission for the Navigation of the Rhine under the symbol CCNR-ZKR/ADN/WP.15/AC.2/2014/50.



Vary the duration of transport depending on the range of loading temperatures at which carriage of UN No. 1361 is not subject to the provisions of ADN.

**Related documents:**

Informal document INF.17 (EBU) (twenty-second session);  
ECE/TRANS/WP.15/AC.2/46, report on the twenty-second session, January 2014, paras. 53–59 and annex I.

## Introduction

1. For ADN 2015, a new special provision 803 has been adopted, which reads as follows:

“803 Hard coal, coke and anthracite, when carried in bulk, are not subject to the provisions of ADN if:

- (a) The temperature of the cargo is not higher than 60°C before, during or immediately after loading of the hold;
- (b) The estimated duration of carriage is not more than 20 days;
- (c) If the actual duration of carriage is more than 20 days, supervision of the temperature is carried out from the twenty-first day; and
- (d) If the master is given, at the time of loading and in a traceable form, instructions on how to proceed if there is a significant heating of the cargo.”

2. The ADN Safety Committee agreed in principle that the duration of carriage under subparagraph (b) would be monitored (ECE/TRANS/WP.15/AC.2/46, para. 59: “If in the months to come experience showed that that period was too long, it would be shortened in the amendment proposals before their final adoption for entry into force in 2015”).

3. On behalf of the German delegation, a specialized agency, the Federal Institute for Materials Research and Testing, did further research on this topic, including a “digital simulation of the auto-ignition process in bulk coal during transport on inland waterway vessels”.

4. The simulation led to the following conclusion: if the coal is loaded onto an inland waterway vessel at a temperature lower than 60°C, the duration of transport can be increased with no need for additional measures. In light of the digital simulations, the following maximum durations could be established:

<i>Maximum temperature on loading (°C)</i>	<i>Maximum duration of journey (days)</i>
60	10
50	18
40	32
30	57

4. In February 2014, there were two serious accidents connected with the carriage of coal in Germany. The coal had been transported on inland waterway vessels, then stored temporarily and then loaded onto railway trucks. In these cases the coal had been loaded on the trucks with embers or had caught fire once in the trucks.

## Proposal

5. In light of these lessons, the German delegation proposes that special provision 803 should be amended before 1 July 2015, as planned by the ADN Safety Committee at its twenty-second session.

6. We propose that special provision 803 should be amended as follows (changes underlined).

“803 Hard coal, coke and anthracite, when carried in bulk, are not subject to the provisions of ADN if:

(a) The temperature of the cargo has been determined using an appropriate procedure and is not higher than 60°C before, during or immediately after loading of the hold;

(b) Depending on the temperature of the cargo before, during and immediately after loading of the hold, the expected duration of carriage does not exceed the maximum journey times shown in the table below:

<i>Maximum temperature on loading (°C)</i>	<i>Maximum duration of journey (days)</i>
<u>60</u>	<u>10</u>
<u>50</u>	<u>18 [17]</u>
<u>40</u>	<u>32 [30]</u>
<u>30</u>	<u>57 [50]</u>

(c) Where the effective duration of carriage exceeds the maximum duration shown in subparagraph (b), temperature monitoring is carried out from the first day over the maximum;

(d) The master is given, at the time of loading and in a traceable form, instructions on how to proceed if there is a significant heating of the cargo.”

7. By analogy, we propose that ADN subsection 1.4.3.3 (v) should be amended as follows from 1 January 2015:

“(v) When special provision 803 applies, shall guarantee and document, using an appropriate procedure, that the maximum permissible temperature of the cargo is not exceeded and shall provide instructions to the master in a traceable form.”

## Justification

8. The simulation results and the accidents during rail carriage of coal have shown that auto-ignition of coal cannot be completely excluded if the loading temperature reaches 60°C and the duration of carriage is 20 days. Consequently, we consider it necessary to limit the duration of carriage to 10 days for a maximum loading temperature of 60°C without additional measures.

9. Where the loading temperature is lower, the duration of transport may be extended over several stages. The aim is to ensure that the proposed maxima for the duration of carriage will allow for safe transport of coal.

10. The first figure given in the table for the number of days corresponds exactly with the results of the calculations. They are based on the generally prevailing conditions in practice.

11. The number of days given in square brackets represent a conservative estimate, to be used in setting the general conditions of carriage. In accordance with safety practices, an additional safety margin has been deducted and slightly rounded. It would be for the Safety Committee to decide whether this conservative approach is appropriate in this case.

12. For reliable results, the measuring procedures used in determining the loading temperature should be appropriate for the given loading conditions. During loading, it may be advisable to use infrared cameras or detectors to scan the surface of freshly poured piles of coal, coal on conveyer belts and coal as it falls during pouring.

13. If the coal is stored on board a vessel before trans-shipment, lances could be used to monitor potential hotspots in piles of coal.

14. The most appropriate measuring procedure should also be used for temperature monitoring during transport (subparagraph (c)), in order to detect embers in the hold.

## **Safety**

15. The proposed amendment will improve safety during bulk carriage of UN No. 1361.

## **Application**

16. Compared with the earlier wording of special provision 803, this amendment will entail minimal changes thanks to the use of appropriate methods of measuring. The link between loading temperature and the duration of carriage has been established. The extension of the permissible duration of transport to [50] [57] days makes for greater ease of application compared with the earlier version of special provision 803.

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