

# OTIF



ORGANISATION INTERGOUVERNEMENTALE POUR  
LES TRANSPORTS INTERNATIONAUX FERROVIAIRES

ZWISCHENSTAATLICHE ORGANISATION FÜR DEN  
INTERNATIONALEN EISENBAHNVERKEHR

INTERGOVERNMENTAL ORGANISATION FOR INTER-  
NATIONAL CARRIAGE BY RAIL

INF. 4

29 October 2013

Original: German

**RID:** 2<sup>nd</sup> Session of the RID Committee of Experts' standing working group  
(Copenhagen, 18 to 22 November 2013)

**Subject:** Carriage of UN 1361 Carbon, animal or vegetable origin

**Proposal transmitted by EURACOAL**

## I. Background

1. Annually more than 200 m tonnes of hard coal are imported to Europe, of which around 20 m tonnes of coal is carried via the European rail network to Germany. There is additional domestic transport in Germany (German and imported coal) of about 20 m tonnes. The share of coal in the entire volume of transport by rail in Europe amounts to around 200 m tonnes or 16%. The share of coal in the entire volume of rail freight to Germany amounts to around 20%. The transport of coal is organized in highly efficient logistics chains. Rail is an irreplaceable means of transport in delivering coal to power plants and industry.
2. Due to three incidents with partly smouldering coal in the holds of inland navigation vessels, reported at the turn of the year 2011/2012, for the first time the question was raised as to how to deal with coal under the provisions set out in ADN. It was determined that ADN does not permit the carriage of coal in bulk in inland navigation vessels which meets the classification criteria of Class 4.2. The RID Committee of Experts' standing working group was informed of this in UIC's informal document INF.6 dated 5 November 2012.
3. At the meeting in Riga from 12 to 15 November 2012, the RID Committee of Experts' standing working group agreed to discuss an amendment to RID at their next meeting on the basis of a specific proposal. The basic idea could be a far reaching exemption for coal under certain conditions, as was decided for inland navigation vessels at the 22<sup>nd</sup> session of the Joint Meeting of Experts on the Regulation annexed to the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (ADN) from 21 to 25 January 2013 in Geneva (see document ECE/TRANS/WP15/AC.2/46).

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4. Furthermore the current practice of using open wagons was legalized by concluding a multilateral agreement (see RID 6/2012).
5. The aim of this proposal is to implement the decision of the RID Committee of Experts' standing working group based on the ADN special provision 803 for inland navigation vessels. In preparing this proposal, the characteristics of the bulk carriage of coal by rail had to be taken into account.

## II. Proposals for amendments

6. In Chapter 3.2, Table A UN No. 1361 CARBON, animal or vegetable origin, packing group III, column (6), add a reference to a new special provision "665".
7. In Chapter 3.3, add a new special provision as follows:

**"665** When carried in bulk, coal, coke and anthracite, which, using the test procedure in accordance with 2.2.42.1.5 RID, can be assigned to Class 4.2, packing group III and to UN No. 1361 CARBON, are not subject to the provisions of RID and can be carried in open wagons by derogation from the special provisions for carriage in bulk VC 1 and VC 2, provided that

- (a) The temperature of the whole load intended to be carried in the next 7 days is not higher than 60 °C or the temperature of the cargo is not higher than 60 °C during or immediately after loading into the hold or
- (b) This coal has been carried by inland navigation vessel and the temperature has already been measured according to Multilateral Agreement M 007 ADN and the storage period after unloading from the vessel is not longer than 7 days or
- (c) The coal is conveyed from fresh extraction directly into the wagon and without measuring the temperature and
- (d) The employees involved in the transport operation have instructions on which emergency measures must be taken in case of fire development or fire in the train.

The filler shall ensure and document that the maximum permissible temperature of the cargo is not exceeded in the following cases:

- before loading in relation to the quantity (the pile) which is intended to be transported by rail within the next 7 days,
- and during or immediately after loading the wagons insofar as this is technically possible.

8. If the proposed special provision is adopted, a separate ruling concerning special provisions VC 1 and VC 2 is no longer necessary.

## III. Justification

9. Measures in dangerous goods regulations should in principle be designed in such a way that they do not distort competition, and they must take into account the particular conditions of the modes of transport. Unsuitable, unfeasible or disproportionate measures exceeding the current RID regulations for rail are not compatible with this. Additionally the actual risk potential has to be taken into account. Therefore, the basic idea of an exemption in RID is to facilitate matters for all those involved in the transport chain, in comparison to full compliance with RID.

10. The number of incidents involving self-heating coal in wagons is tiny compared to the number of transport operations. The load space volume of each single wagon is significantly smaller than the hold of an inland navigation vessel, which means that the risk of self-ignition is much lower owing to the limited risk of oxidation. This lower risk potential justifies not having to monitor the duration of transport, which is normally significantly less than the 20 days established for carriage by inland navigation vessels.
11. For this reason, the full application of RID with the labelling, documentation, organisational and training obligations for all those involved in the carriage of coal by rail would be disproportionate to the low risk which may come from the transport of coal in wagons. There is no recognisable safety-related risk to employees involved in the carriage of coal by rail, e.g. the train driver, as a result of self-heating coal.
12. The conditions laid down under paragraphs a) and d) of the proposed special provision 665 are appropriate measures to prohibit, as far as possible, the self-heating to self-igniting processes of coal and the respective risks during transport, and, if necessary, to take preventive action. The proposed maximum temperature for loading of the wagons is the same as for loading inland vessels. The temperature is based on the experience of coal importers, as well as comprehensive temperature monitoring performed in recent months before starting each consignment and before unloading the vessel. In inland navigation vessels, this monitoring mainly revealed a temperature band after loading in relation to the season and outdoor temperatures of between 20 and 55 ° Celsius. Furthermore, the coal importers performed additional measurements before transport (after filling) and before unloading on 115 inland navigation vessel consignments in the period from 28 November 2011 to 8 July 2013. The results revealed
  - Loading temperatures from 2 to 51 °C,
  - Unloading temperatures from 5 to 40 °C and
  - Journey lengths of 1 to 38 days (due to high water and river closures).
13. The main reason for the different temperatures is the noteworthy impact of the outdoor temperatures on the development of the coal temperature. As a result, the loading temperatures in cold winter months are lower than in summer and the unloading temperatures are consistently significantly below the loading temperatures (10 to 15 °C). This means that ambient and water temperatures have a cooling effect on the coal. In summer months the unloading temperature was also generally less than the temperature measured after loading. But the temperature difference is smaller and the loading temperature is higher when the outdoor temperature is also higher.
14. The decisive result of the measurements is that the temperatures never exceed the limit of 60 °C, even during a transport period lasting 38 days.
15. The above-mentioned measurements and values recorded from experience show only a negligible increase in temperature for consignments travelling up to 20 days. As the risks relating to the possibly self-igniting properties of the coal (smouldering nests, development of smoke but no open fire) only increase after longer periods of transport and the volume of the load space volume is significantly smaller than in inland navigation vessels, and as information on the actual duration of the transport operation after loading or shipment onto the rail system is not available, the transport period has not been limited or subject to additional temperature measurements. Exceeding a 20 day limit, comparable to inland navigation vessels, should be monitored in each single case on the basis of transport documents, e.g. CIM consignment note (box 16), or existing operational reports or other instruments, with new reporting and monitoring processes which have to be introduced and implemented. This could only be realised in practice with disproportionate effort, especially if multiple carriers are involved in the transport chain.

16. Dispensing with the transport period criterion also means that the train driver need not carry out monitoring if the transit period is exceeded. This is a hurdle which cannot be overcome in practice. The train driver does not know – with the exception of dangerous goods – the kind of goods the train is carrying, because they are not relevant to him unless they are dangerous goods. He knows the number and sequences of the wagons and he knows which wagons are loaded or unloaded. Furthermore, he is given a braking sheet with information on the available braking force of the train and some other operationally relevant parameters. The specification of the goods loaded is not relevant for his activities – except in the case of dangerous goods. Only if dangerous goods are transported is he given – based on existing documentation obligations (e.g. UN number in the transport document) – the information that dangerous goods are in the train and what types of dangerous goods (UN number) are being carried in which wagons. Therefore, by exempting UN 1361 coal from the RID regulations under the conditions referred to, monitoring of the temperature of the coal would not facilitate transport, but would make it more difficult and unfeasible in practice.
  17. The equipment for filling wagons according to today's state-of-the art does not allow the use of an infrared camera or similar measurement. In general therefore, the temperature of the pile of coal has to be measured before loading. Due to the fact that the volume of coal in a standard train of 1400 tonnes (25 wagons of 55 tonnes each) is significantly lower than in inland navigation vessels (between about 1000 and 4000 tonnes per vessel), measurement before each wagon is loaded would entail disproportionate effort. With reference to the entire train cycle over several days, it is proposed that a volume that can be transported in 7 days (24/7 continuous operation) need be measured only once.
  18. If coal is conveyed from fresh extraction directly into the wagon, it can normally be assumed that there will be no increase in temperature during transport, because the coal is treated with wet processing. Furthermore, measurement of the pile of coal is not possible in the case of direct loading. Therefore, for this special case there is no need to measure the temperature of the coal.
  19. In accordance with ADN Multilateral Agreement M 007 the temperature of UN 1361 coal has to be measured before the vessel leaves the loading port. This ensures that the coal does not exceed temperatures of 60 °C during transport in the vessel. It can therefore be assumed that the temperature of these coal products will not increase if it is stored for no longer than 7 days after the vessel has been unloaded. A repeat, second temperature measurement should therefore be ruled out for reasons of cost.
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