

## Implementation of the harmonised Risk Management Framework (RMF)

The RMF aims to set up a harmonized risk management approach based on a quantitative risk analysis (QRA) methodology, applicable for all modes of inland transport of dangerous goods (TDG) in Europe. Mandated by the European Commission's Directorate-General for Mobility and Transport (DG MOVE), it was issued by the European Railway Agency (ERA) in 2018.

Safety in handling and transport of all chemicals is at the heart of the Transport and Logistics activities of Cefic's members. Through the long-lasting Responsible Care programme, the European chemical industry has adopted a sustainable strategy aiming for "zero accidents" in chemicals logistics based on a coordinated continuous improvement approach.

### POSITION

#### 1. TDG Regulations first.

The modal transport regulations (RID/ADR/ADN) provide internationally agreed and globally harmonised transport conditions that effectively control the risk posed by the intrinsic hazards of the dangerous goods transported. The European RMF should not be used to assess each individual TDG operation and even less as an alternative measure for compliance to RID/ADR/ADN. The RMF should instead be focussed on assessing residual risks in specific local situations for TDG operations.

#### 2. The use of RMF must remain on a voluntary basis.

The RMF constitutes one approach among other existing methodologies to manage residual risks related to inland TDG. Other risk management methods are also valid and are, in certain circumstances, more effective than a QRA approach.

#### 3. The RMF can only be used for comparing transport options.

The lack of reliable TDG incident statistics and the fact that business and technical standards are constantly evolving, mean that the calculated results for a specific TDG operation will vary. Given this, absolute thresholds are not an effective means for providing practicable and sustainable criteria for assessing residual risks in transport. The RMF results can only ever support the evaluation of the effectiveness of risk mitigation measures by comparing alternative transport options.

+++++

## TECHNICAL BACKGROUND

### Responsible Care in chemicals transport

Safety in handling and transport of all chemicals is at the heart of Cefic's members Transport and Logistics activities. Through the long-lasting Responsible Care<sup>1</sup> programme, the European chemical industry has adopted a sustainable strategy aiming for "zero accidents" across the chemicals logistics based on a coordinated continuous improvement approach.

Over the years, Cefic members have developed and promoted numerous prevention and mitigation measures in the form of best practices guidelines, based on shared expertise and lessons learnt from incidents and near-misses<sup>2,3</sup>. This voluntary and proactive approach by European chemical companies towards safe and responsible transport is in line with HSE standards and goes beyond the applicable legislations, e.g. the regulations for the inland TDG<sup>4</sup> by rail (RID), road (ADR) and barges (ADN).

The chemical industry listens, engages and works with all stakeholders to foster responsible initiatives on behaviour-based safety training for operators, on interoperability between service providers, on improving traffic infrastructures and vehicle equipment as well as on the strengthening of emergency response services. This is how we could successfully improve industry's safety performance for the transport of chemicals and effectively avoid harm to people and environment.

### Introduction on the development of the RMF

The multimodal inland Transport of Dangerous Goods (TDG) in Europe is governed by the regulatory frame of RID/ADR/ADN. Compliance to these regulations provides a high level of transport safety as well as legal certainty to all stakeholders, including industry and Competent Authorities (CA).

In specific local situations, as prescribed in the regulations, national CA of the Contracting Parties may ask for additional provisions, that go beyond the requirements of RID/ADR/ADN. The CA are guided to provide evidence of the need for such additional provisions and to assess the residual risk of these specific situations.

With the objective of levelling the approach to risk-based decision-making, the European Commission Directorate General for Mobility and Transport (DG MOVE) ordered a study about the feasibility to establish "Harmonized Risk Acceptance Criteria (RAC) for TDG" (2014)<sup>5</sup>. The study revealed that the implementation of harmonised RAC requires, in first instance, a harmonisation of risk management concepts currently applied in Europe. Based on these recommendations, DG MOVE mandated the European Agency for Railways (ERA) to develop the RMF. ERA, in collaboration with interested stakeholders, has developed the RMF for the multimodal and the inland TDG applicable to road, rail and inland waterway transport in Europe.

---

<sup>1</sup> <https://cefic.org/our-industry/responsible-care/>

<sup>2</sup> Guidelines for investigation of logistics incidents and identifying root causes ([link](#))

<sup>3</sup> Guidance on Safety Risk Assessment for Chemical Transport Operations ([link](#))

<sup>4</sup> More information on UNECE webpage on TDG: <http://www.unece.org/trans/danger/danger.html>

<sup>5</sup> <https://ec.europa.eu/transport/sites/transport/files/modes/rail/studies/doc/2014-03-25-dangerous-goods.pdf>

The RMF is intended for different types of users like local, regional, national and international authorities and organisations as well as companies, consultants, professional associations and institutions, agencies and regulatory bodies. The first version of the RMF was published in 2018<sup>6</sup>.

The following conditions must be met in order to avoid the prohibition of certain TDG operations or that a disproportionate burden is required for the equivalent safety benefits that other risk analysis methods (not quantitative) can offer.

## **The RMF must not replace the rule-based approach of RID/ADR/ADN**

Intermodal inland TDG in Europe is well regulated by RID/ADR/ADN, which lays down the transport requirements for dangerous goods.

The assignment of the transport conditions to each chemical substance, based on the UN Number, is an integral part of the rule-making procedures of the RID/ADR/ADN Joint Meeting at the United Nations Economic Commission for Europe (UNECE). These transport conditions are, for example, Packing Groups, Special Provisions, Limited Quantities, Packing Provisions or Tank Instructions to name a few. They result from the continuous assessments of the risk, the application of generic risk acceptance criteria and represent the preventive measures to comply with.

Transport complying with these legal provisions is considered safe and is authorised by the Contracting Parties. Industry as well as CA rely on the legal certainty of this rule-based approach, made of mutually agreed harmonised transport conditions.

In this regulatory frame, risk management methods are incorporated in Chapter 1.9 of RID/ADR/ADN. This chapter deals with the prerequisites for CA when they impose additional provisions for TDG on their territory, that are not included in RID/ADR/ADN. This enables them to manage risks arising from specific local situations.

Evidence that such additional measures are necessary may be provided by a risk assessment according to the two Generic Guidelines adopted in 2006 and 2008 and referred to in the footnote of Chapter 1.9 of RID and ADR respectively. The RMF is considered complementary to these initial guidelines. It may provide support for the implementation of a risk management for specific local situations requiring provisions beyond the compliance with RID/ADR/ADN.

- **The application of the RMF cannot be imposed as a rule for every inland TDG operation.**

Considering the well-regulated conditions set out by RID/ADR/ADN, it would neither be efficient nor suitable to impose generally the obligation of quantitative risk assessments to every TDG operation, including those which are already well regulated, as it would be an extra burden without adding safety benefits.

Moreover, the geographical scope of RID/ADR/ADN is wider than Europe. In international transport, cross-border situations may be subject to potentially conflicting requirements arising from individual risk assessments.

Finally, moving away from the established rules-based approach for inland TDG would create disharmony with other modal TDG regulatory frameworks such as maritime transport (IMDG Code) and air transport (IATA-DGR). This would hinder access to global shipping and affect free trade, which is one of the European Commission's 2014-2019 priorities ("A stronger global actor"<sup>7</sup>).

---

<sup>6</sup> [https://www.era.europa.eu/activities/transport-dangerous-goods/inland-tdg\\_en](https://www.era.europa.eu/activities/transport-dangerous-goods/inland-tdg_en)

<sup>7</sup> [https://ec.europa.eu/commission/priorities/stronger-global-actor\\_en](https://ec.europa.eu/commission/priorities/stronger-global-actor_en)

## **The future use of the RMF represents one approach amongst others to manage residual risks in inland TDG, and therefore must remain on a voluntary basis**

- **Cefic supports the view that the use of the RMF must remain on a voluntary basis.**

The current inland TDG legislation foresees the use of risk assessment in Chapter 1.9 of RID/ADR/ADN. The two initial UNECE guidelines mentioned above facilitate the work of the CA in this task. To safeguard the flexibility for the CA, the application of these initial UNECE guidelines is not mandatory. The RMF aims to further estimate the risk in a harmonised way. As a complement to these guidelines, the RMF should also be used on a voluntary basis rather than being imposed by Member States or by the EU. It constitutes one approach amongst others to manage residual risks that can be used according to the wide variety of possible circumstances, situations and factors. Other risk management methods are also valid and under certain conditions may be more effective than a QRA approach. These are methods based on qualitative assessments like the “Cefic Guidance on Safety Risk Assessment for Chemical Transport Operations (Risk Matrix)”<sup>3</sup>, the “Zurich Hazard Analysis (ZHA)”, the “DHL Resilience360 Risk Assessment”, the “Hazard and Operability Studies (HAZOP)” and the “Event/Fault Tree Analysis”.

Besides this, the RMF is still under development. Its reference data will constantly improve over the years. It is therefore not reasonable to force stakeholders to make use of the RMF for their decision-making in a premature state.

- **The RMF might be one method amongst others to provide supplementing rationale for rule-making initiatives at UNECE RID/ADR/ADN Joint Meeting. The RMF must not be integrated as an individual stand-alone improvement process for the regulations.**

The inland TDG regulations are adjusted on a two-year cycle within the UNECE RID/ADR/ADN Joint Meetings. This is a continuous process of general risk assessment borne by CA of Contracting Parties and representatives of industry associations and other NGOs. The carriage of chemical products must comply with the resulting legal requirements and apply the risk mitigation provisions and preventive measures to reduce the residual risks and obtain authorisation from the Contracting Parties.

The RMF can support this improvement cycle, not as an automatic stand-alone process, but by providing supplementing rationale for proposals submitted to the UNECE Joint Meeting.

## **The application of the RMF must be used for comparing alternative transport options; it should not be used in combination with rigid uniform threshold as risk acceptance criteria to prohibit transport**

- **The RMF must only be used for comparing alternative transport options.**

The RMF uses a comparative approach to assess the acceptability of risk situations across inland TDG. Decision making is determined by comparing the *reference* risk situation (the initial situation without application of any risk control measure) with the *future* risk situation (when risk control measures are applied like different routes, different modes as well as technical and/or operational modifications). To make it possible to accurately choose the best option, a sound interpretation of the assumptions and an appropriate definition of the parameters, used as reference data in the scenario are necessary.

- **Absolute thresholds for determining the acceptability of residual risks in TDG are not a durable element of risk control.**

Especially in transport, using a quantitative risk analysis (QRA) and expressing the risk in terms of a single absolute number may mask important aspects of the specific transport situation. A same value can either mean a high probability of an incident combined with a low consequence, or a low probability with a significant consequence. However, it is important to distinguish the situations because the need for risk control will be completely different.

Additionally, more accurate reference data, which is very limited today, will become available over time. Assessing a same situation today and probably in one year, will lead to deviating values. The same goes about the fluctuation of the business and the constant evolution of technical standards.

- **RAC cannot take the form of (harmonised) absolute ceilings.**

RAC in the form of absolute thresholds would set a cap or even ban certain inland TDG operations without alternatives, making it impossible to find competitive transport solutions. Inland TDG that is compliant with RID/ADR/ADN must always be accepted. Special provisions may apply or even be added to RID/ADR/ADN, if required. The RMF can then be used to determine the optimum level of safety when competitive alternatives are available for the transport conditions of the scenarios, that already comply with RID/ADR/ADN.

- **The choice and use of RAC must remain a Member State's prerogative.**

Risks arising from specific local situations occur locally, depending on location-specific situations, circumstances and factors. Taking account of the wide variation of possible location specifics, there is no one-size-fits-all (combination of) criteria that could be applied in all situations and that could value a calculated numerical risk number. Therefore, the RAC for these specific situations must be determined locally, under the responsibility and expertise of the Member State and in due respect of the principle of subsidiarity and sovereignty in the EU.

- **RAC do not need to be harmonised at European level.**

Taking account of the above, Cefic believes that it is not worth harmonising the RAC at European level.

However, the DNV-GL<sup>8</sup> study on "Harmonized RAC for TDG" (2014)<sup>5</sup> has inventoried the 10 candidate approaches for RAC existing in Europe<sup>9</sup>. They do not just take the form of numerical values, but also RAC concepts and/or methodologies. The study also highlights four areas of challenges<sup>10</sup> to evaluate the strengths and weaknesses of candidates for harmonised RAC. Most of these challenges are met by the following combination of RAC approaches:

- "uniform application of the codes" combined with
- "expert judgement approach" and
- "risk ranking of alternatives (road tunnel approaches)",

to be applied in the management of the residual risks related to individual (regional) local situations.

---

<sup>8</sup> Det Norske Veritas - Germanischer Lloyd, accredited certification body providing services for various industries ([www.dnvgl.com](http://www.dnvgl.com))

<sup>9</sup> For details, see: DNV-GL Study "Harmonized RAC for TDG" (2014), Appendix II.1.2, page II-1

<sup>10</sup> For details, see: DNV-GL Study "Harmonized RAC for TDG" (2014), Appendix II.6.1, page II-15

Quantitative RAC with fixed threshold values are too rigid and are not long-lasting to respond appropriately to those requirements. Conscientious selection amongst adequate alternative options, rather than simply prohibiting transport, reveals to be the most suitable and practicable approach.

**For more information**

**Peng Paternostre**

Manager Transport & Logistics

+32.2.436.94.08

ppa@cefic.be

**About Cefic**

Cefic, the European Chemical Industry Council, founded in 1972, is the voice of 28.000 large, medium and small chemical companies in Europe, which provide 1.2 million jobs and account for 15% of world chemicals production.