

The task of transporting chemicals

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INTRODUCTION

The use of chemical substances in Colombia has been increasing for manufacturing, extractive, and service processes, mainly imported and, to a lesser degree, produced domestically.

In 1998, the country drafted the first version of the National Profile of Chemical Substances in Colombia, updated in 2012 (López Arias, Suárez Medina, & Hoyos, 2012)¹ and in 2015. This National Profile of Chemical Substances provides a general overview of how the different stages of chemical substances are managed in Colombia and suggests the need to formulate new regulatory and public policy frameworks in the country for comprehensive risk management associated with the use of these substances through the collection and dis-



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semination of information, risk assessment and management and inspection, surveillance and control (IVC NSO by its acronym in Spanish) activities in the stages of importation, production, **transport**, storage, use, marketing or distribution and disposal of chemical substances, to prevent, reduce or control risk situations and to prevent their materialization into accidents causing harm to health and the environment.

¹ López Arias, A., Suárez Medina, O. J., & Hoyos, M. C. (2012). *National Profile of Chemical Substances in Colombia* (2nd edition). Ministry of Environment and Sustainable Development, United Nations Industrial Development Organization - UNIDO.

Therefore, the country assumed the challenge of contributing to the achievement of integrated management of chemical substances in their life cycle focused on the prevention, mitigation, management, and control of risks and disasters associated with using chemicals. The roadmap for Colombia's accession to the Organization for Economic Cooperation and Development (OECD) includes action plans that will allow for a holistic management scheme for using chemical substances in the country.

TRANSPORT SECTOR



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Within the multitude of raw materials that the chemical industry relies on and needs, a good part consists of substances with some dangerous conditions. The availability of such materials, in general, is not ubiquitous and requires mobilization from where it is possible to obtain it to where it will be used.

This condition includes both international and local distribution routes, the latter being responsible for distributing and delivering the dangerous substances and materials to be used to their final destination. In our country, the vast majority of this last stage of the mobilization of materials is car-

ried out by land transportation using the existing road network.

The transport sector has traditionally joined international forces to communicate chemical product dangers, mainly through the United Nations Committee of Experts on the Transport of Dangerous Goods (UN CETDG). This Committee developed the first internationally recognized classification and labeling system to transport dangerous goods, known as the "Recommendations on the Transport of Dangerous Goods" (RTDG).

The "United Nations Recommendations on the Transport of Dangerous Goods" consider introducing new substances and materials into the market, the requirements of modern transport systems, and, most importantly, ensuring the safety of people, goods, and the environment. The recommendations are presented as the "Model Regulations for the Transport of Dangerous Goods," better known as the *Orange Book*, which serves as a framework for governments to develop uniform national regulations governing the various forms of transport.

Among the aspects covered by the *Orange Book* are the principles of classification and the definition of classes, the drawing up of a list of the primary dangerous goods, general packaging requirements, test methods, marking, labeling or placarding, and transport documents. It also includes special provisions applicable to specific classes of goods.

NATIONAL REGULATIONS FOR THE TRANSPORT OF CHEMICALS

As a task of immense importance, it is not surprising that it is regulated and involves a series of complex operational and managerial considerations that must be considered and carried out simultaneously.

From a regulatory point of view, transporting dangerous materials and substances by road is framed within what is described within the Compilatory Decree 1079 of 2015, particularly within Chapter 7, Section 8. This section establishes the technical and safety requirements for transporting dangerous goods, seeking to minimize risks, ensure safety, and protect life and the environment, per the guidelines of the United Nations Model Regulations.

This standard establishes the general provisions associated with (a) cargo and vehicles (subsection 1), (b) obligations associated with the actors in the chain (subsection 2), including the obligation to prepare or present the Emergency Card under the Colombian Technical Standard (NTC by its acronym in Spanish) NTC 4532, and (c) the obligation of the goods to be labeled appropriately and placarded following standard NTC 1692, based on the Recommendations on the Transport of Dangerous Goods of the United Nations. Likewise, specific obligations are stipulated for each of the actors in the chain, such as the sender or owner of the goods, the consignee of the goods, the trucking company, the cargo vehicle's driver, and the vehicle's owner or holder.

Subsection 3 of this standard focuses on the control system. It specifies the management to be given to substances according to their classification, given the diversity of substances and their characteristics, and the particular standards that regulate them.

Complementarily, the Ministry of Transport issued Resolution 1223 of 2014, which establishes the requirements for the mandatory basic training course for drivers of freight vehicles transporting dangerous goods. Freight transportation companies must ensure that the driver has a basic training certificate. Resolution 1223 describes the content and hours of this training course, its period of validity, and the conditions for its renewal.

In terms of vocational training, in 2005, the National Apprenticeship Service (SENA by its acronym in Spanish) structured the Labor Competency Standards (NCL by its acronym in Spanish) called "Transporting dangerous goods in motor vehicles by current legislation and regulations" for each of the danger classes defined by the United Nations in the Model Regulations (codes 280601053 to 280601063). These are made up of different qualifications that seek to strengthen the competence of personnel involved in a variety of work activities related to the operation of heavy motor vehicles for freight transport and dangerous goods of different technologies, not only for the preservation of goods (vehicles) but also for the life of human beings and the environment.

Aiming to strengthen the knowledge of drivers transporting dangerous goods through self-training and self-evaluation processes, in 2008, the Ministry of Transport prepared a series of thirteen (13) booklets on the transport of dangerous goods, two of which contain general aspects on health and safety, nine on the classification and specific requirements: one for each class of dangerous goods according to the United Nations classification, one on the transport of Liquefied Petroleum Gas - LPG and another on Class 6.2, toxic



Photo by courtesy of TDM TRANSPORTES S.A.S.

and infectious substances. The booklets are available on the dangerous goods portal of the Ministry of Transport's Website.²

Additionally, 2018 Decree 1496 was issued, which adopts the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in Colombia. The GHS is one tool that contributes extensively to good chemical management; it aims to standardize and harmonize the classification and labeling of dangerous chemicals worldwide based on identifying the intrinsic dangers of these products and their communication.

Decree 1496 of 2018 states that the GHS will be implemented for chemicals used in workplaces, agriculture, transport, and consumer products. In 2022, the Ministry of Transport issued Circular Letter 20221010000177, which outlines the guidelines for implementing the GHS in transport operations.

RESPONSIBLE CARE COLOMBIA TRANSPORT TOOL

Responsabilidad Integral Colombia (RIC by its acronym in Spanish) is known globally as **Responsible Care** and represents a voluntary chemical industry initiative with a presence in more than 70 countries.

Its mission is to provide technical support to member companies in implementing the regulatory frameworks that affect the value chain of the chemical sector and thus improve their performance in the safe management of the substances and chemicals they handle, focusing on sustainability (see Figure 1).

As we can see, transporting dangerous goods is a complex task that requires not only the consider-

ation of logistical conditions but also environmental, social, and management criteria for achieving an adequate and sustainable operation.

With this in mind, starting in 2020, RIC developed a **technical tool for evaluating transport and logistics operations of dangerous goods**, whose first version was implemented in 2021.

The tool aims to evaluate companies in the transport sector for their responsible management of the road distribution of dangerous goods by freight companies and to provide an instrument that allows cargo owners to determine the competitive advantages in evaluating suppliers for transporting dangerous goods by road.

After several pilots, which allowed identifying and implementing improvement actions, the 2023 version of the tool includes among the topics to be evaluated: *management systems, business management and sustainability, internal and external risk management, handling of dangerous goods, supply chain security, environmental management, occupational health and safety management, and the Strategic Road Safety Plan (PESV by its acronym in Spanish)*.

The tool consists of three (3) significant sections or modules, each focusing on a critical aspect of the transport task (see Figure 2).

Module No.1 focuses on the **strategic management of the organization** and includes topics associated with management systems (including environmental commitment and responsibility for the safety and health of workers), touching on some of the risk management issues related to the task of transporting dangerous goods, in particular planning issues, and road safety. It is divided into two large groups: Management Systems and Business Management and Sustainability.

² <https://www.mintransporte.gov.co/publicaciones.php?id=2521>

FIGURE 1. Supply Chain Scheme.

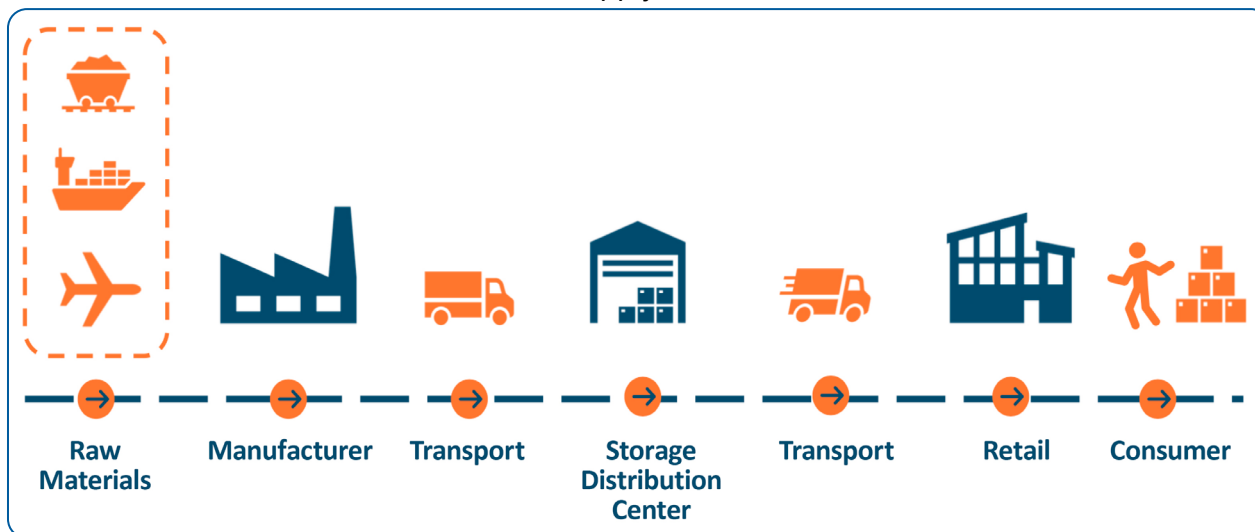
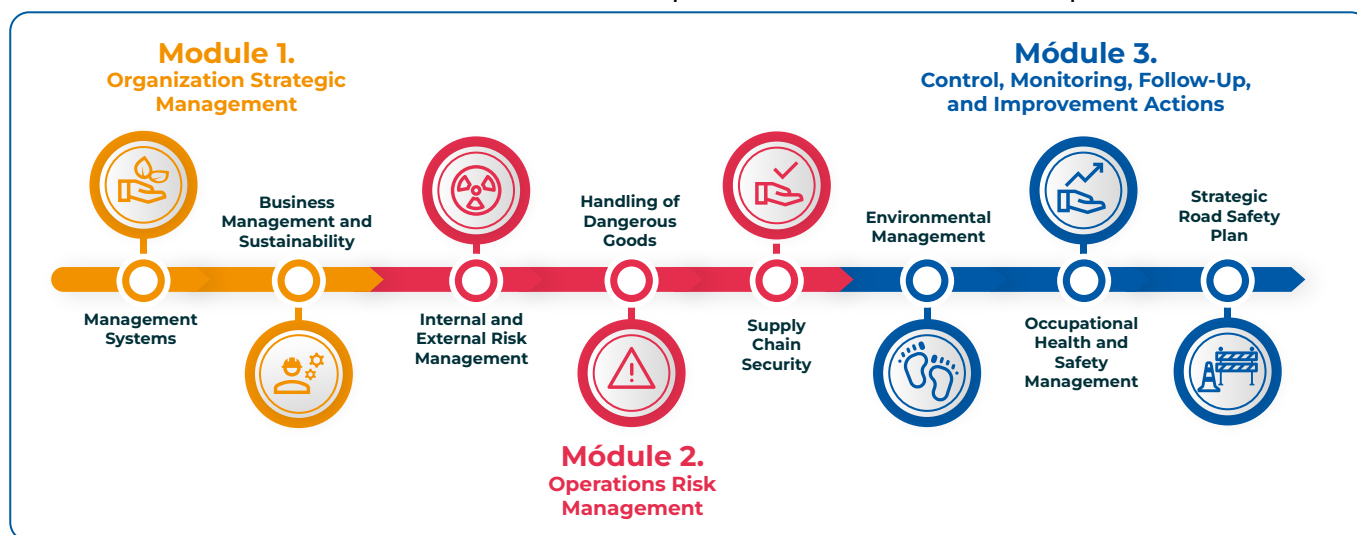


FIGURE 2. Thematic Modules of Responsible Care Colombia Transport Tool.



Module No. 2, titled Operations Risk Management, also addresses risk management issues from the operational point of view, physical security, and the actual handling of dangerous goods.

Module No. 3 evaluates the control, monitoring, follow-up, and improvement actions associated with and derived from carrying out the activities

of the transport process itself and at the organizational level, highlighting, in particular, the Strategic Road Safety Plan, a potent management tool.

The evaluation process aims to determine, in addition to the evident regulatory compliance and its implementation, those distinctive actions that highlight the particular performance of the organi-

zations. The tool is designed to identify best practices and complementary actions that enable an organization engaged in the transport of dangerous goods to achieve a level of excellence. These same features of the tool also help identify potential areas for improvement within the organization, highlighting, according to the module in which the area is located, the particular issue for which there is evidence of room for improvement.

The result of the assessment, presented in the form of a report, allows organizations to obtain an “x-ray” of the condition of all processes and activities associated with transporting dangerous goods as a result of a holistic assessment of the process, highlighting those that have added value and making visible those that would require organizational intervention.

CONCLUSIONS AND RECOMMENDATIONS

From the evaluation process that Responsible Care Colombia has carried out to date, it is clear that information related to general safety practices is needed to transport chemicals. Therefore, it is essential to improve training in the transport industry on the proper use of hazard communication elements and the internalization of their meaning, especially for personnel who may have greater exposure to dangerous goods in general and to hazardous chemicals in particular, such as personnel who load and unload the goods and emergency services personnel who are the first responders to accidents involving dangerous goods.

An essential element in the mobilization of goods in the country are the documents that must be car-

ried while transporting any of the nine classes of dangerous goods; among these are the Emergency Card and the Safety Data Sheets (SDS).

The Responsible Care Colombia tool highlights the communication of dangers to people working in the transport sector so that they are informed about the general safety practices to be followed in performing their duties. Transporters must be provided with information regarding the specific dangers that may occur in case of an accident, as well as additional information if they have to load and unload the goods or fill the fuel tank of the transport unit. The tool is up-to-date with the regulations adopted in the country on this subject.

The tool developed by Responsible Care Colombia provides a process that addresses the needs of both transporters and cargo owners. It also strengthens chemical product distribution processes, extending the ethics of responsible conduct to those in charge of transport operations.

Among the benefits of the evaluation process through the Responsible Care Colombia technical tool is that cargo owners or producers can identify competitive advantages when evaluating chemical transportation providers. Likewise, progress can be made through the tool towards standardizing a holistic process for assessing transport activity.

Among the companies that have been evaluated through this process, we can mention companies who are members of our initiative, such as **TDM Transportes SAS, Eduardo Botero Soto SA, BDP Colombia SA, Transquiroga SAS, Tractocar Logistics SAS, and GrupoDistri**. For more information on this process, please visit our website:

www.responsabilidadintegral.org