

Maj. PhDr. Mgr. Miroslav Matouš, Ph.D., MBA

Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, Prague

Department of Operational Management

e-mail: miroslav.matous@hzscr.cz

ORCID: 0000-0002-2531-0983

col. Ing. Roman Franci

Ministry of the Interior - General Directorate of the Fire Rescue Service of the Czech Republic, Prague

Department of Operational Management

e-mail: roman.franci@hzscr.cz

ORCID: 0009-0009-5676-2200

Ing. David Gabriš, Ph.D.

Security section, ORLEN Unipetrol RPA Ltd., Litvínov-Záluží

Department for the Transport of Dangerous Goods

Dangerous goods safety adviser

e-mail: david.gabris@orlenunipetrol.cz

ORCID: 0009-0007-7108-7325

Ing. Ivan Souček, Ph.D.

Association of the Chemical Industry of the Czech Republic, Prague

Director, Public Relations

e-mail: ivan.soucek@schpcr.cz

ORCID: 0000-0002-3061-6784

PhDr. Tomáš Kudrna

Association of the Chemical Industry of the Czech Republic, Prague

Department for the Responsible Care

Logistics, Transport and Assets Management

e-mail: tomas.kudrna@schpcr.cz

ORCID: 0009-0005-3418-9643

TRINS System for the Response to Incidents Involving the Transport of Dangerous Substances – 30 Years of Cooperation with the Czech Integrated Rescue System

Systém pomoci TRINS při nehodách spojených s přepravou nebezpečných látek – 30. výročí spolupráce se složkami integrovaného záchranného systému v České republice

Abstract

This article is published on the occasion of the 30th anniversary of the signing of the agreement between the Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic and the Association of the Chemical Industry of the Czech Republic. It evaluates the Transport Information and Incident System in

terms of accidents involving the transport of dangerous goods used in the chemical industry for the benefit of the state as one of the safety tools that can be utilized by the integrated rescue system. The system is commonly known and in practice referred to by the abbreviation TRINS. The TRINS system has its historical roots in international agreements on the transport of dangerous goods by road, rail, inland waterways, and air. International agreements thus establish uniform rules for safe international transport of dangerous goods. These rules also extend to domestic transport with the aim of harmonizing the conditions under which dangerous goods are transported within the European Union. The TRINS system is part of a group of 16 operational European Intervention in Chemical Transport Emergencies (ICE) systems, created by the European chemical industry to assist in emergencies arising during the transport of dangerous goods. The Czech Republic is involved in this system through the Association of the Chemical Industry of the Czech Republic, which ensures compliance with European standards and links this European system with the national TRINS system. The practical section presents statistical data for the entire duration of the cooperation agreement, including an overview of the number of emergencies involving the release of dangerous goods. The scientific contribution of this article lies in the theoretical application of resilience and hybrid threat analysis to chemical logistics, as well as in presenting key information on the 2025 railway accident involving a tank train carrying benzene. During this large-scale incident, the first documented multiple deployment of several companies within the TRINS system during rescue and response operations was identified. Methodologically, the article is primarily structured as a presentation and analysis of the collected data and information. An important source of information is the knowledge acquired by the authors across the relevant spectrum of professional disciplines. The article concludes by reflecting on the future prospects and further development of cooperation within the TRINS system.

Keywords: Agreement, dangerous goods, dangerous substance, emergency, fire protection unit, chemical industry, integrated rescue system, safety.

Abstrakt

Článek je publikován při příležitosti 30. výročí podpisu smlouvy mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Jeho obsahem je zhodnocení systému pomoci Transportního informačního a nehodového systému při nehodách spojených s přepravou nebezpečných věcí ze strany chemického průmyslu ve prospěch státu jako jednoho z bezpečnostních nástrojů, který může být využit integrovaným záchranným systémem. Pojem je obecně znám a v praxi se používá pod zkratkou TRINS. Systém TRINS má své historické kořeny v mezinárodních dohodách o přepravě nebezpečných věcí po silnici, železnici, dále po vnitrozemských vodních cestách a s využitím prostředků leteckých dopravců. Mezinárodní dohody tak stanovují jednotná pravidla pro bezpečnou mezinárodní přepravu nebezpečných věcí. Tato pravidla se rozšiřují i na vnitrostátní přepravu s cílem harmonizovat podmínky v rámci Evropské unie, za kterých se nebezpečné věci přepravují. Systém TRINS patří do skupiny šestnácti fungujících evropských systémů Intervention in Chemical Transport Emergencies (ICE), které byly vytvořeny evropským chemickým průmyslem za účelem pomoci při mimořádných událostech vzniklých při přepravě nebezpečných věcí. Česká republika je do tohoto systému zapojena prostřednictvím Svazu

chemického průmyslu České republiky, který zajišťuje návaznost na evropské standardy a propojuje tento evropský systém s národním systémem TRINS. V rámci praktické části jsou prezentována statistická data za celou dobu platnosti dohody o spolupráci včetně přehledu počtu mimořádných událostí spojených s únikem nebezpečných věcí. Mezi vědecké přínosy článku patří teoretické uplatnění konceptů odolnosti a analýzy hybridních hrozeb v chemické logistice a dále prezentace základních informací k železniční dopravní nehodě cisternového vlaku přepravujícího benzen v roce 2025. V rámci této rozsáhlé události byl identifikován historicky první násobný zásah více společností zapojených do systému TRINS při provádění záchranných a likvidačních prací. Metodologicky je článek zpracován především jako prezentace a analýza získaných statistických dat a informací. Významným zdrojem jsou informace získané v rámci autorského kolektivu napříč příslušným odborným spektrem. Na závěr je předloženo zamyšlení nad budoucností a pokračováním spolupráce v rámci systému TRINS.

Klíčová slova: Dohoda, nebezpečná věc, nebezpečná látka, mimořádná událost, jednotka požární ochrany, chemický průmysl, integrovaný záchranný systém, bezpečnost.

Introduction

The year 2026 will mark the 30th anniversary of the signing of the cooperation agreement between the Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic (hereinafter referred to as “Mol-GD FRS CR”) and the Association of the Chemical Industry of the Czech Republic (hereinafter referred to as “CHIA CR”), on cooperation in establishing the Transport Information and Incident System (hereinafter referred to as “TRINS”). This system is used in practice in the Czech Republic (hereinafter referred to as “CR”) during emergencies involving the transport of dangerous goods (hereinafter referred to as “DG”). The transport of DG, which includes a wide range of dangerous substances (hereinafter referred to as “DS”) in the form of gases, liquids, or solids, requires stringent safety measures and the adoption of preventive steps to minimize the risk of emergencies.

In the event of an accident or a leak involving DG and mixtures, there is a risk to the health and lives of people and animals, or the potential for an accident with a significant impact on the environment. It is necessary to minimize these impacts and ensure the highly effective management of such incidents. The technical literature defines these accidents as environmental accidents associated with the production, processing, use, transport, and storage of substances and mixtures. In terms of environmental impacts, there is a risk of contamination of surface or groundwater, including the pollution of drinking water sources. Soil contamination is also a problem, as substances penetrate deep into the ground, necessitating the removal of significant amounts of contaminated soil. For environmental protection purposes, the European Union (hereinafter referred to as “EU”) adopted a Council Directive, known as the SEVESO Directive, which established a basic framework for the prevention of major accidents. A subsequent update, known as SEVESO II, further strengthened environmental protection requirements and expanded the classification of substances based on their hazards to water and the environment. Substances were classified, among other things, according to their hazard classification for water or the

environment. In 2012, the SEVESO III Directive¹ was adopted, which includes requirements for the labeling and packaging of DG in accordance with the European Regulation on the Classification, Labeling, and Packaging of Substances and Mixtures (hereinafter referred to as “CLP”).² In the CR, this directive was implemented through the Act on the Prevention of Major Accidents.³ The environmental impacts of accidents are determined by many factors, including the quantity and physicochemical properties of the leaked DG, as well as the vulnerability of the environment or current conditions at the accident site, such as meteorological or seasonal conditions. The spread of the DG is influenced by the topography of the terrain, the density of surrounding buildings, and similar factors.⁴ There are many causes of emergencies in connection with the transport of DG. One such cause concerns traffic accidents on roads or railways. A wide range of chemicals, whether flammable, explosive, or toxic, serves as an important and necessary part of society, which uses specific properties thereof in many industries, from industrial production to end products needed in everyday life. However, if they leak and come into contact with the human body, they can cause serious health problems, such as burns to the skin or mucous membranes. In the Czech context, the TRINS system is thus one of the key tools for supporting response to chemical incidents, linking the capabilities of the chemical industry with the components of the Integrated Rescue System (hereinafter referred to as “IRS”).⁵

1. Methodological framework of the issue

In order for this technical article to fulfill its primary objective, which is to evaluate long-term practices in providing technical assistance using the TRINS system within the IRS, the available information need to be analyzed. To gain an understanding of this information, it is important to assess the theoretical framework, which is derived primarily from current Czech legislation, including international sources. The practical section presents current information and statistical data, covering both research and

¹ EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance*. Online. 2012. Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0018> [cit. 2026-03-23].

² EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance)*. Online. 2008. Available from: <https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=celex%3A32008R1272> [cit. 2026-03-21].

³ Czech Republic, 2015. Zákon č. 224/2015 Sb., o prevenci závažných havárií způsobených vybranými nebezpečnými chemickými látkami nebo chemickými směsmi a o změně zákona č. 634/2004 Sb., o správních poplatcích, ve znění pozdějších předpisů, (zákon o prevenci závažných havárií). In: *Sbírka zákonů České republiky*. 2015. Issue 93, pp. 2762–2801. ISSN 1211-1244.

⁴ SIKOROVÁ, Kateřina and Kateřina BLAŽKOVÁ. *Analýza dopadů havárií s účastí nebezpečné látky na životní prostředí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2018, pp. 1–21. ISBN 978-80-7385-211-5.

⁵ PRAKTICKÁ LOGISTIKA. *Nebezpečný náklad. Třicet let systému TRINS*. Online. 2026. Available from: <https://www.praktickalogistika.cz/nebezpecny-naklad/tricet-let-systemu-trins/> [cit. 2026-03-12].

practical applications. The research methods and scientific investigation techniques used include:

- Presentation and analysis of the information gathered. By comparing the theoretical knowledge gathered, information drawn from several publicly available sources, and internal documents as well as analyzing facts and statistical data it is possible to identify current practices. This allows for the objective formulation of conclusions and the prediction of possible future developments, with the aim of enhancing the operational readiness of the TRINS system.
- Practical information gathered by the authors' team, comprising experts involved in the TRINS system from the Fire Rescue Service of the Czech Republic (hereinafter referred to as the "FRS CR") and the chemical industry, represents a key and up-to-date source of information.
- Statistical research methods. The statistical data collected served as a crucial tool for evaluating the subject matter. Statistics allow for a precise description of phenomena and the relationships between them.
- The combination of acquired theoretical knowledge and practical experience provides a deeper insight into opportunities for improving cooperation and strengthening resilience to the consequences of both routine incidents and large-scale emergencies.
- Based primarily on practical experience, these findings support the view that the established TRINS system reflects the need to continue exploring this topic and thereby create conditions for further development in this specific security domain. Knowledge of the current state of affairs, derived from an understanding of the facts, can be considered an important starting point for improving the level of assistance provided.

2. International agreements

The transport of DG is a process requiring certain international regulations governing the certification of packaging, vehicle labeling, special training and education of workers, and the like. The basic document currently governing the conditions of road transport of DG is the Agreement concerning the International Carriage of Dangerous Goods by Road (hereinafter referred to as "ADR"),⁶ concluded on September 30, 1957, in Geneva, Switzerland, under the auspices of the United Nations Economic Commission for Europe, and entered into force on January 29, 1968. The agreement was updated in subsequent years. The latest revised version of ADR 2025, effective from January 1, 2025, was published as document ECE/TRANS/352, Volumes I⁷ and II.⁸ Under the conditions of the Czechoslovak

⁶ In the French translation: Accord européen relatif au transport international des marchandises Dangereuses par Route.

⁷ United Nations Geneva, 2024. Economic Commission for Europe Inland Transport Committee. ADR applicable as of January 1, 2025. Agreement Concerning the International Carriage of Dangerous Goods by Road. Volume I. *ECE/TRANS/352/Vol. 1*. ISBN 978-92-1-003149-3.

⁸ United Nations Geneva, 2024. Economic Commission for Europe Inland Transport Committee. ADR applicable as of January 1, 2025. Agreement Concerning the International

Socialist Republic, the ADR agreement was adopted by a Decree of the Minister of Foreign Affairs in 1987.⁹ In the CR, the ADR Agreement is the subject of a communication from the Ministry of Foreign Affairs.¹⁰ In 2025, the Ministry of Foreign Affairs prepared a consolidated version of the ADR agreement, which, however, has not yet been published in connection with the approval process with the new obligation to publish international agreements in the e-Collection system.¹¹ The Regulations concerning the International Carriage of Dangerous Goods by Rail (hereinafter referred to as “RID”) serve as an essential document for rail transport.¹² The Regulations are an appendix to the Convention concerning International Carriage by Rail, abbreviated as COTIF,¹³ which was adopted on May 9, 1980, in Bern, Switzerland.¹⁴ The Convention was promulgated in the Czechoslovak Socialist Republic by a decree of the Minister of Foreign Affairs.¹⁵ In 2006, the revision of the COTIF Convention was communicated by the Ministry of Foreign Affairs.¹⁶ The currently valid version of RID, effective from January 1, 2025, is contained in the appendix to the COTIF Convention.¹⁷ Within the CR, DG are transported primarily by

Carriage of Dangerous Goods by Road. Volume II. *ECE/TRANS/352/Vol. 2*. ISBN 978-92-1-003149-3.

⁹ Czechoslovak Socialist Republic, 1987. Vyhláška ministra zahraničních věcí č. 64/1987 Sb. ze dne 26. května 1987, o Evropské dohodě o mezinárodní silniční přepravě nebezpečných věcí (ADR). In: *Sbírka zákonů Československé socialistické republiky*. 1987. Issue 13, pp. 399–403.

¹⁰ Czech Republic, 2023. Sdělení Ministerstva zahraničních věcí č. 15/2023 Sb. m. s., o přijetí změn Přílohy A – Všeobecná ustanovení a ustanovení týkající se nebezpečných látek a předmětů a Přílohy B – ustanovení o dopravních prostředcích a o přepravě Dohody o mezinárodní silniční přepravě nebezpečných věcí (ADR). In: *Sbírka mezinárodních smluv České republiky*. 2023. Issue 10, pp. 2722–5408. ISSN 1801-0393.

¹¹ MINISTERSTVO DOPRAVY. *Dohoda ADR 2025. Přeprava nebezpečných věcí – Dohoda ADR*. Online. 2025. Available from: [https://md.gov.cz/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-\(1\)/Preprava-nebezpecnych-veci-dohoda-adr](https://md.gov.cz/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-(1)/Preprava-nebezpecnych-veci-dohoda-adr/Dohoda-ADR-2025?returl=/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-(1)/Preprava-nebezpecnych-veci-dohoda-adr) [cit. 2025-02-25].

¹² In the French translation: Règlement concernant le transport international ferroviaire des marchandises dangereuses.

¹³ INTERNATIONAL RAIL TRANSPORT COMMITTEE. *Convention concerning International Carriage by Rail (COTIF) of 9 May 1980 in the version of the Protocol of Modification of 3 June 1999. Applicable with effect from 1 July 2006*. Online. 2010. Available from: https://www.cit-rail.org/secure-media/files/documentation_de/passenger/cotif/cotif99_2010-12-01_fr-de-en_protocol.pdf?cid=422235 [cit. 2025-02-25].

¹⁴ The Convention concerning International Carriage by Rail (COTIF) of May 9, 1980, including subsequent amendments and supplements, was published under No. 8/1985 Coll., No. 61/1991 Coll., No. 251/1991 Coll., and No. 274/1996 Coll.

¹⁵ Czechoslovak Socialist Republic, 1985. Vyhláška ministra zahraničních věcí č. 8/1985 Sb. ze dne 2. srpna 1984, o Úmluvě o mezinárodní železniční přepravě (COTIF). In: *Sbírka zákonů Československé socialistické republiky*. 1987. Issue 2, pp. 0017–0068.

¹⁶ Czech Republic, 2006. Sdělení Ministerstva zahraničních věcí č. 49/2006 Sb. m. s., o sjednání Protokolu z 3. června 1999 a změně Úmluvy o mezinárodní železniční přepravě (COTIF) z 9. května 1980. In: *Sbírka mezinárodních smluv České republiky*. 2006. Issue 26, pp. 922–1168. ISSN 1801-0393.

¹⁷ INTERNATIONAL RAIL TRANSPORT COMMITTEE. *Convention concerning International Carriage by Rail (COTIF) Appendix C – Regulation concerning the International Carriage of*

road and rail, in accordance with the aforementioned regulations and documents.¹⁸ The Czech legal framework for the transport of DG, which refers to the aforementioned international agreements, is further set forth in the Road Transport Act,¹⁹ the Railways Act,²⁰ and the Government Regulation on Transport Regulations.²¹ The latest international regulation related to the transport regime of DG and used in the TRINS database is related to the use of International Air Transport Association (hereinafter referred to as “IATA”) codes. This non-governmental international organization, which was founded in 1945 in Havana, Cuba, also sets the conditions for the transport of DG and publishes a handbook entitled Dangerous Goods Regulations.²² In the CR, the transport of DG by waterway takes place primarily on the navigable section of the Elbe River, particularly from Chvaletice in the Pardubice Region to Děčín in the Ústí nad Labem Region, continuing onward toward Germany. Transport on inland waterways in the CR is governed by the Communication on the European Agreement concerning the International Carriage of DG by Inland Waterways.²³ This European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (hereinafter referred to as “ADN”), which was drawn up by the United Nations Economic Commission for Europe (hereinafter referred to as “UNECE”), establishes uniform rules for the transport of DG by inland waterways with the aim of enhancing the safety of international transport, ensuring effective environmental protection by preventing pollution resulting from accidents and incidents during transport, and more. The current version of the ADN Agreement, which has been amended several times, is governed by the consolidated text issued by the relevant ministry.²⁴

The international agreements ADR, RID, IATA, and ADN establish uniform rules for the safe international transport of DG. These rules also extend to domestic transport with the aim of harmonizing the conditions under which DG are transported within the

Dangerous Goods by Rail (RID). Online. 2025. Available from: https://www.cit-rail.org/media/files/cim-unterlagen/rid_2025_e_1_january_2025.pdf?cid=422244 [cit. 2025-02-25].

¹⁸ KUBÁTOVÁ, Hana. *Průmyslová toxikologie a životní prostředí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2018, pp. 47–53. ISBN 978-80-7385-210-8.

¹⁹ Czech Republic, 1994. Zákon č. 111/1994 Sb., o silniční dopravě a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 1994. Issue 37, pp. 1154–1184.

²⁰ Czech Republic, 1994. Zákon č. 266/1994 Sb., o drahách a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 1994. Issue 79, pp. 3041–3054.

²¹ Czech Republic, 2013. Nařízení vlády, kterým se mění nařízení vlády č. 1/2000 Sb., o přepravním řádu pro veřejnou drážní nákladní přepravu, ve znění nařízení vlády č. 295/2000 Sb. In: *Sbírka zákonů České republiky*. 2013. Issue 177, p. 7753. ISSN 1211-1244.

²² INTERNATIONAL AIR TRANSPORT ASSOCIATION. *Dangerous Goods Regulations (DGR)*. Online. 2026. Available from: <https://www.iata.org/en/publications/dgr/> [cit. 2025-02-25].

²³ Czech Republic, 2011. Sdělení Ministerstva zahraničních věcí č. 102/2011 Sb. m. s., o Evropské dohodě o mezinárodní přepravě nebezpečných věcí po vnitrozemských vodních cestách (ADN). In: *Sbírka mezinárodních smluv České republiky*. 2011. Issue 53, pp. 8302–10220. ISSN 1801-0393.

²⁴ Czech Republic, 2019. Sdělení Ministerstva zahraničních věcí č. 38/2019 Sb. m. s., kterým se vyhlašuje konsolidované znění Evropské dohody o mezinárodní přepravě nebezpečných věcí po vnitrozemských vodních cestách (ADN). In: *Sbírka mezinárodních smluv České republiky*. 2019. Issue 24, pp. 5410–7544. ISSN 1801-0393.

EU and ensuring the proper functioning of the common transport market.²⁵ To unify the regulations,²⁶ a directive dedicated to the transport of DG was issued.

3. TRINS mutual cooperation agreement

3.1 Conclusion of an agreement

As mentioned above, in the early 1990s, after the opening of the Czech Republic's borders, the territory of the country became a transit route connecting Western and Eastern Europe. This resulted in a higher accident rate, which also affected vehicles transporting DG. At that time, the FRS CR did not have the equipment or knowledge to deal with these traffic accidents with such routine, technical support, and experience in working with chemicals. At the same time, the CHIA CR joined the global charter called Responsible Care²⁷ in 1994 with its national program Responsible Business in Chemistry. The charter was an ethical standard and commitment adopted with the aim of building trust in an industry that was essential for raising living standards and quality of life. Based on joining this charter in the area of safely conducting business in the chemical industry, there was interest in the product-related activities even outside the premises of the member companies.²⁸ These were the primary reasons that became the cornerstone of the TRINS system. The demand from both sides, inspired by experiences in the Federal Republic of Germany, where a similar system, the Transport-Unfall-Informationen- und Hilfeleistungssystem, was already operating effectively, culminated in June 1996, and on July 1, an Agreement on Mutual Cooperation between the Mol-GD FRS CR and the CHIA CR, titled TRINS (hereinafter referred to as "Agreement"), was concluded and signed. The agreement focused primarily on preventing and mitigating the consequences of accidents occurring during the transport of DG by member companies of the CHIA CR, for the benefit of the FRS CR. The agreement was originally concluded for a period of five years and represented a significant step toward systematically strengthening cooperation between the government and the chemical industry. This cooperation has yielded, and continues to yield, positive results for both parties. Fire protection (hereinafter referred to as "FP") units gradually gained a higher degree of confidence in handling emergencies involving chemical DS, thanks to the opportunity to consult with experts from the CHIA CR member companies. These companies, in turn, gained a more detailed understanding of the procedures and measures applied in the event of an accident involving their products or transported substances. This mutual exchange of information has thus contributed to improving prevention, preparedness, and the response itself. In 2001

²⁵ VĚŽNÍKOVÁ, Hana. *Transport nebezpečných věcí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2019, pp. 17–18. ISBN 978-80-7385-217-7.

²⁶ EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods (Text with EEA relevance)*. Online. 2008. Available from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008L0068> [cit. 2026-03-21].

²⁷ A global voluntary initiative of the chemical industry in the field of health, safety, and the environment since 1985.

²⁸ SVAZ CHEMICKÉHO PRŮMYSLU ČR. *25 let Responsible Care v České republice*. Online. 2019. Available from: https://www.responsiblecare.cz/media/support_files/25let_RC_v_CR_2019_dm4L9UV.pdf [cit. 2025-02-25].

and 2006, based on the positive experience of both parties, the cooperation was repeatedly extended, each time for another five-year period. This confirmed the long-term stability and benefits of this partnership, which has become an integral part of the system for addressing major accidents related to the transport of DG in the CR. A significant milestone was the adoption of the IRS Act²⁹ in 2000 and the FRS CR Act,³⁰ according to which the Agreement was continuously updated in the following period.

3.2 Agreement update – development

Since 2007, cooperation has deepened even further in other areas. Both organizations, the FRS CR and CHIA CR, have opened a new chapter and begun to cooperate in the field of prevention. In 2008, the CHIA CR asked FRS CR to cooperate in joining the European ChemLog program, whose main objective was to find ways to strengthen and streamline the logistics of chemicals, raw materials, and products in Central and Eastern Europe.³¹ The FRS CR agreed to the offer and, from January 2008, participated in the project as an expert advisor on navigation systems for the transport of DS. The TRINS cooperation underwent further changes in response to the requirements of both the FRS CR and the CHIA CR. In 2011, the Agreement was updated with a breakthrough change being the signing of an Agreement for an indefinite period. The cooperation continued between 2011 and 2013 in the subsequent Chemlog Tracking and Tracing project, abbreviated as Chemlog T&T,³² which specifically addressed the monitoring of chemical transport. The results of the project were used in the HERO III project, which implemented the first generation of the eCall system in vehicles under DS transport conditions. In 2014, an amendment to the agreement was signed, which not only extended the scope of cooperation to traffic accidents involving DS, but also ensured assistance from the FRS CR and some member companies in responding to accidents occurring at stationary storage facilities and buildings used for the production, storage, and distribution of chemical substances. Due to the needs of the FRS CR, an updated Agreement was drawn up in 2016, which again expanded the cooperation between the two entities. Its conclusion increased the comprehensive provision of planned assistance to the FRS CR in interventions involving DS. In addition to the areas of cooperation already covered, the Agreement newly defined another area of assistance, namely the provision of decontamination of equipment and protective equipment of the FRS CR and third-party equipment at the request of the IRS components – the provision of services by member companies of the Czech Association of Cleaning Stations (hereinafter referred to as “CACS”). Over the years, the TRINS system has expanded to provide assistance to organizations that use chemicals in stationary facilities, and CACS member

²⁹ Czech Republic, 2000. Zákon č. 239/2000 Sb., o integrovaném záchranném systému a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 2000. Issue 73, pp. 3461–3474. ISSN 1211-1244.

³⁰ Czech Republic, 2015. Zákon č. 320/2015 Sb., o Hasičském záchranném sboru České republiky a o změně některých zákonů (zákon o hasičském záchranném sboru). In: *Sbírka zákonů České republiky*. 2015. Issue 135, pp. 4307–4324. ISSN 1211-1244.

³¹ ENVIWEB. *Projekt ChemLog*. Online. 2010. Available from: <https://www.enviweb.cz/83885> [cit. 2025-02-25].

³² SVAZ CHEMICKÉHO PRŮMYSLU ČR. *Využití projektu ChemLog T&T*. Online. 2017. Available from: <https://www.schp.cz/info/vyuziti-projektu-chemlog-t@t> [cit. 2025-02-25].

organizations offer priority use of their facilities for cleaning tanks used to transfer chemicals in the event of accidents, in order to prevent contamination. Cleaning tank trucks used for transporting DG not only extends their service life but, above all, enhances safety. The main risk lies in prolonged contact between the transported cargo and the tank's inner surface, which can lead to corrosion that may cause damage and leakage of DG from the tank. Chemical reactions involving residues from previous shipments can also cause the newly transported substance to degrade, or even lead to an accident, such as an explosion, fire, or uncontrolled release of DG, with fatal consequences. A certificate is issued upon tank cleaning as proof of the tank's cleanliness, which can reduce the scope of safety measures required during emergency response operations of the IRS in the event of a major accident.³³

The currently valid Agreement³⁴ incorporates all previous documents. It includes areas of traffic accidents involving DG, production and storage facilities within the framework of so-called "extended cooperation", and cleaning using CACS. Over the years, cooperation has gradually deepened in response to the requirements of both entities, resulting in its current form. In the past, in addition to the emergency response area, cooperation also took place in the preventive-educational area, for example, demonstrations of FP units' techniques used in emergencies involving chemical substances, specifically for schools with teaching focused on firefighting or chemistry. The TRINS system belongs to a group of sixteen functioning European systems in the Chemical Transport Emergencies (hereinafter referred to as "ICE") systems, which were created by the European chemical industry to assist in emergencies arising during the transport of DG.³⁵ ICE's activities are coordinated at the European level by the European Chemical Industry Council (hereinafter referred to as "CEFIC").³⁶ This organization brings together the national chemical associations of member countries and serves as a key platform for harmonizing procedures, sharing expertise, and setting standards in the field of safe chemical management. CEFIC provides methodological guidance for the ICE system, coordinates its development, and supports the harmonization of procedures for providing technical assistance in the event of chemical accidents. As part of its activities, CEFIC establishes uniform operating principles for the ICE system, which are subsequently implemented at the national level through individual chemical associations. These principles include, in particular, rules for providing technical consultations, on-site expert assistance, and specialized support in addressing chemical incidents involving DG. CEFIC also coordinates cross-border cooperation, which is essential in cases where an incident exceeds the capabilities of a single country or requires specific expertise available only from foreign entities. Thanks to this European coordination, the ICE system is able to provide consistent, high-quality, and rapid support to emergency services throughout

³³ VĚŽNÍKOVÁ, Hana. *Transport nebezpečných věcí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2019, pp. 87–88. ISBN 978-80-7385-217-7.

³⁴ Czech Republic, 2016. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

³⁵ INTERVENTION IN CHEMICAL TRANSPORT EMERGENCIES. *About ICE*. Online. 2022. Available from: <https://www.ice-chem.org/> [cit. 2025-02-25].

³⁶ In the French translation: Conseil Européen des Fédérations de l'Industrie Chimique.

Europe. The Czech Republic is involved in this system through the CHIA CR, which ensures alignment with European standards and links the ICE system with the national TRINS system. This enables the effective sharing of information, expertise, and experience among member countries and strengthens the overall level of preparedness for major incidents involving chemical substances.

In 2019, Methodological Guidelines for the Evaluation of Assistance Provided were drafted and approved, setting out the method for evaluating assistance provided under the Agreement at the request of the Operations and Information Centers (hereinafter referred to as "OIC") of the FRS CR. The reason for the preparation of the document was the need to adopt a methodology to determine whether the emergency is or is not an intervention within the framework of TRINS under the Agreement. The methodological guidelines were updated several times, most recently in 2025.³⁷

3.3 Contents of the agreement – summary

In addition to the above, the main objective of the agreement is to achieve the closest possible cooperation among the 22 regional member companies that are connected to the TRINS system as of January 1, 2026. The total number of centers providing assistance at various levels within the TRINS system throughout the CR is 37, covering a specified number of DG according to the list of substances.³⁸ These companies, which are listed in detail in the annex to the agreement,³⁹ include, for example, ORLEN UNIPETROL RPA Ltd., Litvínov-Záluží; SYNTHOS Kralupy Ltd., Kralupy nad Vltavou; SYNTHESIA Ltd., Pardubice-Semtín; DEZA Ltd., Valašské Meziříčí; BorsodChem-MCHZ Ltd., Ostrava-Mariánské Hory; MESSER TECHNOGAS Ltd., Prague; LINDE GAS Ltd., Prague-Kyje; ČEPRO Ltd., Prague; DEKONTA Ltd., Ústí nad Labem; Lučební závody DRASLOVKA Ltd., Kolín; and others.⁴⁰ Figure 1 shows the TRINS system centers in detail. The system is coordinated by the TRINS National Coordination Center based in Litvínov-Záluží at ORLEN UNIPETROL RPA Ltd., which is also registered as the Regional Center No. 1.⁴¹ In recent years, its main task has been to coordinate cooperation with other partners active in this area, including foreign partners. The main objective of this activity was to increase safety during the transport of hazardous materials, achieve greater efficiency in the removal of accidents involving the transport of hazardous materials, and achieve close

³⁷ Czech Republic, 2025. Metodický pokyn pro vyhodnocení poskytované pomoci TRINS. ORLEN UNIPETROL RPA s.r.o. – Úsek bezpečnosti. Litvínov, 2025.

³⁸ Czech Republic, 2016. Příloha č. 6. Příručka. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

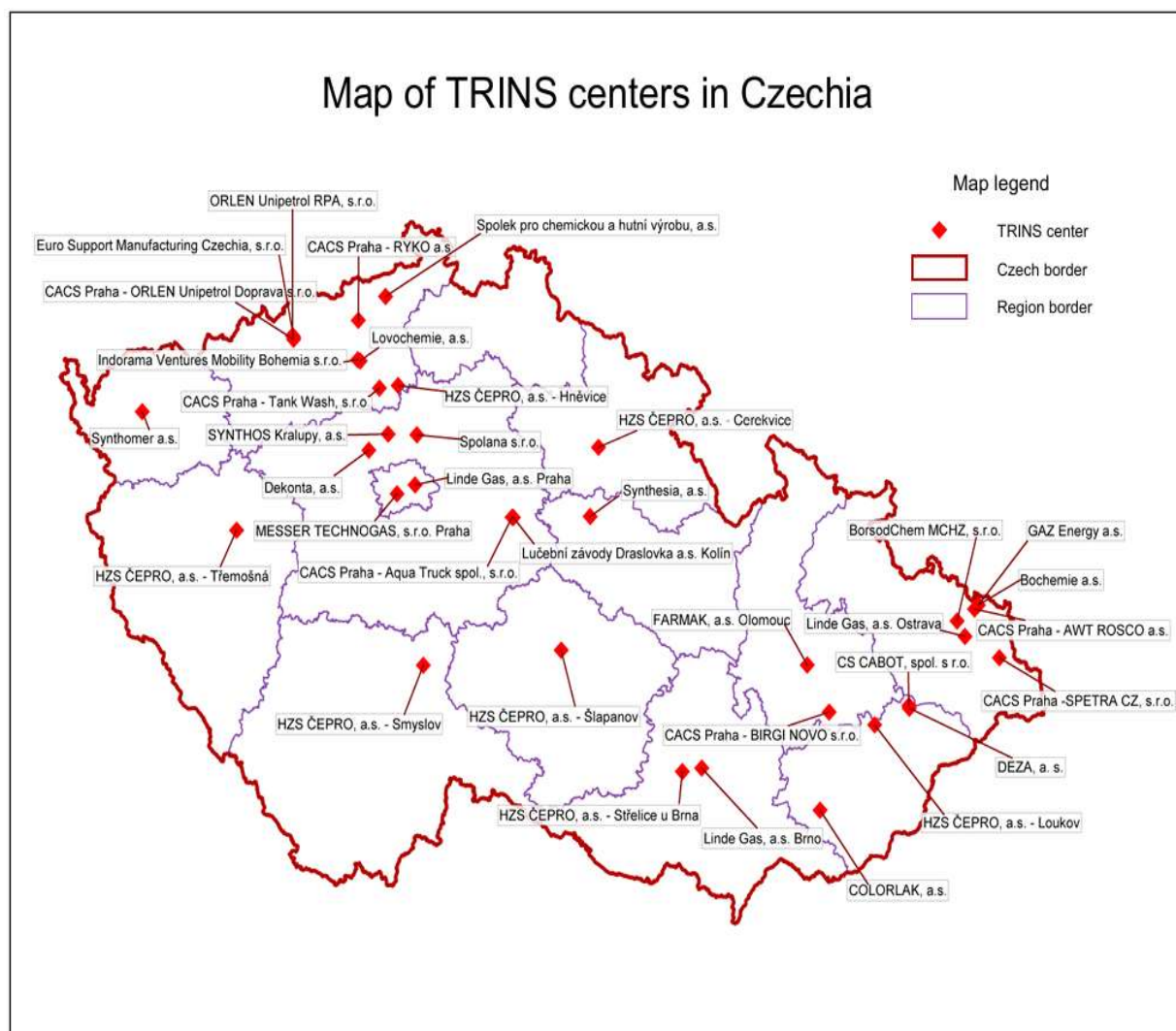
³⁹ Czech Republic, 2016. Příloha č. 2. Příručka. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

⁴⁰ ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Střediska TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Stranky/strediska-trins.aspx> [cit. 2025-02-25].

⁴¹ ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Mapa středisek TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Stranky/mapa-trins.aspx> [cit. 2025-02-25].

cooperation between member companies involved in TRINS activities as part of the IRS. Individual centers are equipped with special technical means, commensurate with the declared level of assistance provided within TRINS. Assistance is provided exclusively at the request of OIC FRS CR, as OIC IRS,⁴² comprising 14 regional OICs and one National Operations and Information Center of the Mol-GD FRS CR.⁴³

Figure 1: Map of TRINS system centers⁴⁴



3.3.1 Framework for mutual cooperation

The agreement provides the following framework for cooperation:

- cooperation between member companies in the event of traffic accidents involving DG;

⁴² Czech Republic, 2000. Zákon č. 239/2000 Sb., o integrovaném záchranném systému a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 2000. Issue 73, pp. 3461–3474. ISSN 1211-1244.

⁴³ Czech Republic, 2015. Zákon č. 320/2015 Sb., o Hasičském záchranném sboru České republiky a o změně některých zákonů (zákon o hasičském záchranném sboru). In: *Sbírka zákonů České republiky*. 2015. Issue 135, pp. 4307–4324. ISSN 1211-1244.

⁴⁴ TRINS National Coordination Center, ORLEN UNIPETROL RPA Ltd., Litvínov-Záluží.

- cooperation between member companies in the event of emergencies arising in stationary facilities during the production and handling of DG – “Extended assistance”;
- services contributing to environmental protection, in particular the priority cleaning of tanks and tank containers required for TRINS intervention and services securing assistance in the decontamination of firefighting equipment provided by CACS member companies.⁴⁵

3.3.2 Forms of assistance

Member companies provide assistance in the following forms:

- Level 1 – telephone consultation. Provision of information, consultation, or advice by a specialist via telephone. This involves the transfer of specific information, especially in cases where the manufacturer, distributor, or recipient of the DG cannot be reached, by the requested TRINS member companies, which possess the necessary knowledge about the DG according to the list of substances. This information is provided to the incident commander according to the situation described and to the best of our knowledge. Advice and recommendations are provided until the relevant manufacturer, distributor, or recipient is reached, who then takes over the consultation.
- Level 2 – consultation at the scene of the incident or accident. Dispatch of a specialist expert as soon as possible after the request, whereby the method of transport to the scene of the incident is always agreed upon according to the specific situation due to the urgency and is handled by the FRS CR or other basic components of the IRS or by the relevant requested TRINS system member companies.
- Level 3 – practical assistance at the site of the incident or accident. Dispatching forces and resources to the site of the incident as soon as possible after receiving a request for practical assistance in dealing with the incident. This assistance is provided by specific TRINS centers for DG according to the list of substances. TRINS centers have the right to refuse to provide this practical assistance in the event of an ongoing emergency response on their own company premises, ongoing deployment of forces and resources outside the company premises, or if the provision of forces and resources at that moment would seriously jeopardize the safety of their own operations. While respecting these conditions, the commander of the TRINS response units dispatched to the site of the intervention or accident shall inform the commander of the intervention according to the factual knowledge available and provide support with the forces and resources provided according to the possibilities of the TRINS system.⁴⁶

⁴⁵ Czech Republic, 2016. Článek 2. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

⁴⁶ Czech Republic, 2016. Článek 3 odst. 2 a příloha č. 1. Příručka. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

The function of the TRINS system is not only to resolve emergencies that may arise during the transport of DG, but also to propose important preventive measures at member company meetings. Their task is to prevent the occurrence of emergencies or to eliminate the possible consequences of accidents to the maximum extent possible. One such measure is the emergency use of phenothiazine during the transport of acrylic acid. During the transport of acrylic acid, a vehicle malfunction or accident may occur, resulting in a drop in the temperature of the hazardous substance below its freezing point (+12.6 °C) with the possibility of the polymerization inhibitor used in production being released. The substance thus remains virtually uninhibited and is susceptible to uncontrolled exothermic polymerization, during which the possibility of ignition or explosion with subsequent destructive effects cannot be ruled out. In such cases, additional stabilization with a polymerization inhibitor – phenothiazine – is necessary. The success of the intervention depends primarily on its speed. Given their location and equipment, these interventions be carried out by support FP units – factory fire brigades designated by the TRINS system to deal with chemical accidents. SYNTHOMER Ltd., Sokolov (formerly HEXION), supplied these FP units with the necessary amount of phenothiazine together with instructions for use. In agreement with the Mol-GD FRS CR, the company created a so-called phenothiazine network not only for the needs of the CR, but also for the possible needs of other European producers of acrylic chemicals.⁴⁷

The OIC IRS or incident commander records the activation of the TRINS system in the application software, which is an operational management information system or Statistical Event Monitoring – Incident Report. A list of all these events is provided to the CHIA CR or the National Coordination Center for further use. In particular, the information is used for the purposes of processing the Annual Reports on TRINS Activities, in which both parties to the Agreement participate. The method of evaluating the assistance provided by TRINS under the Agreement is governed by the above-mentioned methodological guideline, whereby such assistance is provided exclusively at the request of OIC IRS and at the same time the commander of the operation is the commander of one of the basic components of IRS.⁴⁸ The following types of assistance are not considered assistance provided under the Agreement:

- assistance provided by member companies involved in TRINS that is not directly related to the response to an emergency;
- assistance provided by member companies in connection with the response to an emergency on the area of their own company or the premises of a member company;
- assistance provided by member companies is not provided in connection with the response to an emergency associated with the transport of DG under ADR or RID; except in justifiable cases where the nature of the hazardous properties of

⁴⁷ Czech Republic, 2016. Příloha č. 1. Příručka. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.

⁴⁸ Czech Republic, 2000. Zákon č. 239/2000 Sb., o integrovaném záchranném systému a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 2000. Issue 73, pp. 3461–3474. ISSN 1211-1244.

a chemical substance or mixture requires such assistance, even though the substance or mixture is not covered by the ADR agreement or RID regulations.⁴⁹

4. TRINS international reach

4.1 Intervention in chemical transport emergencies

The ICE group of European member countries includes Belgium, Czech Republic, Denmark, France, the Netherlands, Italy, Hungary, Germany, Norway, Poland, Austria, Slovakia, Spain, Sweden, Switzerland, and the United Kingdom. Each year, the ICE Working Group compiles data on the number of interventions carried out at Levels 1, 2, and 3 of assistance from individual countries, with the reporting also including the number of interventions during international transport of DG. Meetings are held regularly, once a year in one of the member countries of the international ICE system. Participation is possible in person or remotely via a communication tool such as Microsoft Teams. The meeting has a predetermined agenda and approved items to be discussed. The agenda typically includes statistical evaluations of the number of incidents in individual member countries, evaluations of so-called “ring tests” and “sophisticated tests”, including a presentation of these tests for the upcoming period. The meeting usually includes a description of experiences with emergencies that had significant impacts on the environment, caused major property damage, or had any other extraordinary consequences. Matters related to the administration and content of the ICE website are also discussed.

Precise methodological instructions and forms are available for conducting ring tests and sophisticated tests, which member countries use for these purposes. Both types of tests simulate emergencies arising during the transport of DG, with the primary focus on determining the speed at which the information necessary for its disposal is provided. In the case of ring tests, a member country selects a DG and requests information from the safety data sheet necessary for dealing with the simulated emergency from individual member countries. The response time is measured, which is the time elapsed between when a member country sends a request for information to another member country and when the member country receives the requested information from the other member country. The objective is to obtain a safety data sheet identified by a UN number or product name within 30 minutes. The safety data sheet may be in the language of the assistance center’s country. In the case of sophisticated tests, the methodology differs. The designated member country responds to a simulated emergency during the transport of a DG by requesting a safety data sheet from the specific member country from which the hazardous substance was shipped. Once again, the time elapsed between when a member country sends a request for information to another member country and when that member country receives the requested information is measured. The results of these tests are published on the ICE website, with access restricted to member countries. Furthermore, the results are presented graphically for the previous period at meetings of ICE member countries. The response time for both tests averages between 20 and

⁴⁹ Czech Republic, 2025. Metodický pokyn pro vyhodnocení poskytované pomoci TRINS. ORLEN UNIPETROL RPA s.r.o. – Úsek bezpečnosti. Litvínov, 2025.

50 minutes. The last meeting of representatives of European ICE systems took place in June 2025 in Brussels, Belgium.

5. Selected tools used in TRINS operations

5.1 List of substances

Assistance at individual levels is provided for DG for which member companies act as consignors, while assistance may also be provided voluntarily for DG that member companies transport or receive. The currently valid list of substances for which TRINS assistance is provided contains 217 different UN numbers and two additional DG that do not have assigned UN numbers but are included in the list due to the nature of their hazardous properties. Some UN numbers are so-called collective items that may include various DG. For this reason, the current list of substances for which TRINS assistance is provided contains 273 different DS or mixtures.⁵⁰

Based on UNECE recommendations for the transport of DG,⁵¹ the UN number is a four-digit numerical code used for the international classification and identification of DG during their transport by road, rail, air, or water. Each item of dangerous goods is assigned a specific, unique UN number that identifies the substance or article in question, as well as its associated hazard level and specific risks. During transport, safety orange placards with numerical data are used. The top section displays the hazard identification number, formerly known as the Kemler code, and the bottom section displays the UN number, which uniquely identifies the DG and is listed in the UNECE Register.

5.2 MEDIS-ALARM database

In the operational practice of FP units, the MEDIS-ALARM⁵² database from the software company MEDISTYL Ltd. is frequently used in emergency situations. Its main advantage lies in situations where it is necessary to quickly find specific information about the hazardous properties of a substance.⁵³ The records about DG are divided into sections, primarily identification and classification, basic properties and extinguishing methods, physical and chemical properties, transport and storage, first aid, and additional information support, particularly legal regulations. The National Coordination Center provides application software developers with an updated list of substances supported by the TRINS system once a year. This database has been in operation since 1991 and contains more than 10,000 substances. The database is intended for fire units, educational institutions, chemical regulatory advisors, chemical

⁵⁰ ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Podmínky, cíle a funkce TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Documents/Seznam%20%C3%A1tek%20TRINS.pdf> [cit. 2025-02-25].

⁵¹ United Nations Geneva, 2019. *Recommendations on the transport of dangerous goods. Model Regulations. Volume I. Twenty-first revised edition*. Online. 2019. Available from: https://unece.org/fileadmin/DAM/trans/danger/publi/unrec/rev21/ST-SG-AC10-1r21e_Vol1_WEB.pdf [cit. 2025-03-28].

⁵² MEDIS-ALARM ONLINE. *Login*. Online. 2026. Available from: <https://www.medisalarm.cz/login/neopraveny> [cit. 2025-03-28].

⁵³ VĚŽNÍKOVÁ, Hana. *Transport nebezpečných věcí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2019, pp. 107–110. ISBN 978-80-7385-217-7.

facilities, and similar entities. The database contains substances and mixtures subject to chemical regulations, primarily the CLP Regulation and international agreements such as ADR, RID, IATA, or ADN. The database may also include substances or mixtures that are regulated by specific EU or national legislation, have established occupational exposure or biological limits, or are identified as hazardous chemicals, so-called Substances of Very High Concern (hereinafter referred to as “SVHC”) under the Regulation on the Registration, Evaluation, Authorization, and Restriction of Chemicals (hereinafter referred to as “REACH”),⁵⁴ or are assessed or classified as endocrine disruptors. The MEDIS-ALARM database provides users with the exact identification of the center, including the level of assistance and contact information for the responsible personnel who provide assistance within the TRINS system.

5.3 NCHL.CZ database

One of the supplementary information sources within TRINS for addressing incidents involving DG is the systematic use of the CHIA CR web application, the NCHL.CZ database (hereinafter referred to as “Database”), which is designed to provide quick guidance on chemical legislation and obligations related to specific substances across the supply chain.⁵⁵ Its use is based on the need for rapid identification of a chemical substance, its harmonized classification, and related legislative obligations under CR conditions. The Database serves as a tool to enhance situational awareness during the early stages of response to emergencies involving a DG, particularly when documentation is missing or illegible, to support decision-making regarding further requests for TRINS system expertise, and to help prevent the escalation of incident consequences. Incidents involving the transport of DG represent typical “time-critical” situations. Decisions regarding response tactics, the delineation of zones, the protection of the public, and the protection of the components of the IRS must be based on rapidly available information. At the same time, the importance of digital, structured, and user-friendly database tools has been increasing in recent years; these tools can supplement expert advice and enhance situational awareness in the first minutes of a response.

The security-theoretical framework for working with the Database is based on the assumption that the quality of information support for emergencies at critical infrastructure sites is one of the key determinants of a system’s resilience. In the

⁵⁴ EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC*. Online. 2006. Available from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32006R1907> [cit. 2026-03-28].

⁵⁵ SVAZ CHEMICKÉHO PRŮMYSLU ČR. NCHL.CZ. *Hodnotící zpráva. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.schp.cz/prilohyarchiv/2710/Hodnot%C3%ADc%C3%AD%20zpr%C3%A1va%20Projektu%20BOZP%202025%20NCHL.pdf?v=202601082x4Q9f7rgmCHwPLO2745> [cit. 2026-03-12].

context of critical chemical logistics infrastructure, resilience can be understood as a system's ability to absorb disruptions or incidents, adapt, and restore functions while minimizing secondary impacts. From an operational perspective, this means minimizing the uncertainty of the incident commander at a time when only limited data from the incident site is available. The highest information risk typically arises in situations where transport documentation is damaged or missing, or when the substance can only be identified indirectly, for example, based on markings, label remnants, odor, or the context of transport. In such cases, rapid use of a database resource can serve as a "bridge" between the initial tactical decision and the subsequent request for specialized assistance.

The Database is primarily intended as a reference tool for the safe and responsible handling of DG, covering obligations throughout the entire supply chain, including manufacturers, distributors, importers/exporters, and end users. It provides substance identification (CAS, EINECS/ES, INDEX), information on hazard classification according to CLP which is a directly applicable EU regulation,⁵⁶ legislative obligations, exposure and hygiene limits, and information on the classification of substances as precursors to chemical warfare agents, drugs, and explosives. The application contains two main sections:

- Substance search, allowing users to search by identifiers or full text
- Legislative lists, enabling users to browse and filter thematic lists without needing to know a specific substance. The list includes, among other things, major accident prevention (SEVESO), SVHC, PIC, POPs, drug and explosive precursors, dual-use substances, and chemical weapons, as well as occupational restrictions and prohibitions.

The format in which data is presented is also important for practical use. The substance card contains clickable elements that open context windows, such as the full text of H-statements and related P-statements, a description of the hazard class/category, or storage compatibility tables. The application also allows the entire DG overview to be exported to a PDF file, which facilitates the archiving of documentation for regulatory compliance and internal records. In terms of database coverage, the user interface indicates a range of over 4,000 substances and the ability to search by name or CAS number. The manual also states that the application is based on the harmonized ECHA classification and applicable national and European legislation. To correctly interpret the results, it is essential to respect the limitations of liability. The database is explicitly defined as a guidance tool, and the information does not constitute legal or professional advice. The user is responsible for verifying relevant regulations and for making decisions in specific cases.⁵⁷

The scenarios for using the database within TRINS can be understood both at the operational or tactical level and in the context of prevention. The operational level

⁵⁶ KUBÁTOVÁ, Hana. *Průmyslová toxikologie a životní prostředí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2018, pp. 33–41. ISBN 978-80-7385-210-8.

⁵⁷ SVAZ CHEMICKÉHO PRŮMYSLU ČR. *NCHL.CZ. Příručka. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.nchl.cz/prilohyarchiv/r3/P%C5%98%C3%84RU%C4%8CKA%20NCHLCZ.pdf> [cit. 2026-03-12].

serves as the initial orientation and triage of information. At the OIC FRS CR, the primary challenges addressed in practice are time compression and the heterogeneity of input information. At this stage, the database can serve as a quick reference source for identifying substances (CAS/ES/INDEX) and for a basic overview of harmonized CLP classification and labeling,⁵⁸ including H-statements and links to related safety recommendations. A typical benefit is “triage”: if the substance is clearly traceable, the OIC FRS CR officer on duty can quickly verify whether it is a substance subject to a specific regime and decide to expedite a request for a TRINS expert or to contact the manufacturer/recipient in accordance with standard procedures. The tactical level provides support for the incident commander, where it is crucial that information be quickly communicable and auditable. Exporting the hazardous substance overview to a PDF file allows for maintaining a “trail” of the information relied upon during the incident as part of decision-making documentation, particularly during subsequent incident evaluation, internal investigations, or communication with other public authorities. Including an overview of legislative restrictions may also be relevant for deciding on follow-up steps once the situation has stabilized, such as procedures for handling DG residues, reporting requirements for selected categories of precursors, and similar matters. However, it is essential to uphold the principle that the database provides general information and does not replace expert assessment or legal interpretation. The evaluation report for the Database project emphasizes that the database was designed to reduce user uncertainty arising from the fragmentation of chemical legislation and the differing obligations of individual links in the supply chain. This aspect is also important for prevention, as it provides a unified framework that promotes proper labeling, record-keeping, and awareness of regulatory regimes even before an emergency related to a substance of concern arises.⁵⁹

In light of the above, a process model for using the Database can be proposed that respects the existing roles of the TRINS system while utilizing the Database as a so-called “quick reference layer”:

- Initial identification: the operator/OIC of the FRS CR obtains available identifiers (UN/ADR, CAS, name, ES/INDEX, or text designation).
- Quick orientation in the Database: verification of identification and retrieval of CLH, H-phrases, exposure limits, and basic regulatory regimes (storage class, mixed storage, precursors, SEVESO, POPs, and similar).
- Decision on escalation: based on the triage result – contact the manufacturer/recipient or request assistance from the TRINS system at the appropriate level.

⁵⁸ EUROPEAN CHEMICALS AGENCY. *Harmonised classification and labelling (CLH)*. Online. 2026. Available from: <https://echa.europa.eu/regulations/clp/harmonised-classification-and-labelling> [cit. 2026-03-12].

⁵⁹ SVAZ CHEMICKÉHO PRŮMYSLU ČR. *NCHL.CZ. Hodnotící zpráva. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.schp.cz/prilohyarchiv/2710/Hodnot%C3%ADc%C3%AD%20zpr%C3%A1va%20Projektu%20BOZP%202025%20NCHL.pdf?v=202601082x4Q9f7rgmCHwPLO2745> [cit. 2026-03-12].

- Sharing and documentation: export the overview to a PDF file for internal records and to ensure consistency of information between the OIC of the FRS CR and the incident commander.
- Validation: in the event of a discrepancy, verified transport documentation and expert assessment (TRINS/expert) take precedence over the database output.⁶⁰

The model does not require any system integration; it can be implemented purely as a process, a standardized workflow using a publicly available tool. However, should the need for deeper integration arise in the future, it is advisable to consider it only after clarifying data governance, responsibility for updates, version auditability, and the definition of which data may be used as operational input. The most significant limitation of the Database for emergency response purposes is its stated role as a reference tool and the resulting responsibility of the user to verify the information. This leads to the following recommendation. Use the Database for initial orientation and triage, not as the sole source for decisions with a direct impact on the safety of the IRS response unit or the public. It is also essential to account for “data uncertainty”: if a substance is not found in the Database, the manual notes the possibility that it is a generic entry in the legislation and that it is necessary to verify the information in the safety data sheet and the chemical composition of the substance. This mechanism is important from a crisis management perspective because it prevents a false sense of certainty in the event of a negative search result. From a practical standpoint, training dispatchers and selected incident commanders in the basic operation of the Database such as searching, working with lists, and standardizing terminology across the TRINS system, the OIC FRS CR, and industry (identifiers, names, common synonyms) appears to be a reasonable minimum. These measures align with the principle that information tools are effective only when users share a common reference language.⁶¹ The database brings a practical, publicly accessible, and structured source of information on DG, their harmonized classification, and related regulatory regimes into the system of cooperation between the state and the chemical industry. Its main contribution to the TRINS system lies in supporting initial orientation and triage of information, improving the auditability of source materials, and strengthening prevention through a unified reference framework. While respecting limitations of liability and maintaining the primacy of expert consultation, the Database can be viewed as a useful supplement to information support for emergency response and as an element strengthening the resilience of chemical logistics in the CR.

⁶⁰ SVAZ CHEMICKÉHO PRŮMYSLU ČR. NCHL.CZ. *Příručka. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.nchl.cz/prilohyarchiv/r3/P%C5%98%C3%8DRU%C4%8CKA%20NCHLCZ.pdf> [cit. 2026-03-12].

⁶¹ SVAZ CHEMICKÉHO PRŮMYSLU ČR. NCHL.CZ. *Hodnotící zpráva. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.schp.cz/prilohyarchiv/2710/Hodnot%C3%ADc%C3%AD%20zpr%C3%A1va%20Projektu%20BOZP%202025%20NCHL.pdf?v=202601082x4Q9f7rgmCHwPLO2745> [cit. 2026-03-12].

6. Empirical data from TRINS operations

6.1 Annual reports of the TRINS system

Based on regularly submitted data on the activities of individual member companies, an evaluation of the TRINS system's activities for the entire past year has been prepared annually since 1996 by the National Coordination Center in close cooperation with the CHIA CR and FRS CR. The annual report for the past year is publicly available on the website of ORLEN UNIPETROL RPA Ltd.⁶² 30 years of records of assistance provided at various levels show that, despite a certain decline in recent years, the TRINS system is still in use. As part of the operational management carried out at OIC IRS when deploying firefighting units in individual regions, the TRINS system is used both to provide information about emergencies and to provide assistance at Level 2 or Level 3. The following interventions can be mentioned among the selected assistance in 2023–2026:

- July 14, 2023 – Plzeň Region, Tachov District, Bezděkov: fuel leak from an overturned tank truck; Level 3 assistance, member company ČEPRO Ltd.
- September 20, 2023 – Central Bohemian Region, Kolín District, Kolín: DS leak – 98% sulfuric acid from a railway tank; Level 3 assistance, member company Lučební závody DRASLOVKA Ltd., Kolín.
- October 27, 2023 – Central Bohemian Region, Kolín District, Kolín: assistance to the Fire Department of the Central Bohemian Region in rescuing a tank truck (diphenylguanidine); Level 3 assistance, member company Lučební závody DRASLOVKA Ltd., Kolín.
- January 10, 2024 – Central Bohemian Region, Rakovník District, Ruda: leak of DS – sodium hydroxide from an overturned tank truck; Level 1 assistance (a replacement tank truck was provided by member company DEKONTA Ltd., but was not used), as shown in Figure 2.
- January 28, 2025 – Pardubice Region, Lanškroun District, Dolní Čermná: discovery of a metal barrel labeled sodium cyanide; Level 3 assistance, member company Lučební závody DRASLOVKA Ltd., Kolín.
- February 28, 2025 – Olomouc Region, Přerov District, Hustopeče nad Bečvou: railway accident involving a fire on a freight train carrying benzene in tank cars, followed by a large-scale release of DS into the environment; Level 3 assistance, member companies DEZA Ltd.; ČEPRO Ltd.; DEKONTA Ltd., as shown in Figure 3.
- October 15, 2025 – Central Bohemian Region, Benešov District, Netvořice: leak of DS – formaldehyde from IBC containers transported on an overturned trailer behind a tractor; Level 3 assistance, member company DEKONTA Ltd.
- January 29, 2026 – Central Bohemian Region, Rakovník District, Žďár: fuel leak from an overturned tank truck; Level 3 assistance, member companies ČEPRO Ltd.; DEKONTA Ltd.

⁶² ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Podmínky, cíle a funkce TRINS*. Online. 2026. Available from: https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Documents/VZ_TRINS.pdf [cit. 2025-02-25].

Figure 2: Traffic accident involving a tank truck carrying sodium hydroxide in the Central Bohemian Region, Rakovník District, Ruda municipality, 2024⁶³



6.1.1 Railway accident involving a freight train transporting benzene

On February 28, 2025, a railway accident involving a tank train transporting benzene occurred in the Olomouc Region. Reports received by the OIC of the Regional Fire Department confirmed that a fire had broken out and several tank railcars had exploded. The freight train, pulled by an electric locomotive, consisted of a total of 17 cars carrying 1,024 metric tons of extremely volatile, explosive, and toxic benzene. The fire affected 12 tank cars, which were mechanically deformed as a result of the derailment. The transported DS was partially burning, while the remainder leaked freely into the surrounding environment. Within a short period of time, nearly the entire contents of the 12 damaged tank cars, an estimated 300 metric tons, were released. At the scene, there was an extreme risk of accelerated evaporation and pressure buildup, leading to an explosion of the fire-damaged railcars due to the extreme heat generated by the burning benzene. Another risk was posed by the release of toxic combustion products and the evaporation of benzene containing combustion products in both gaseous and solid forms, including polyaromatic hydrocarbons, carbon monoxide, and other pollutants. A further risk was the penetration of benzene into the soil and the adjacent water lagoon.⁶⁴ A special fire alarm level was declared, and a state of emergency was declared on March 24, 2025. As part of the Level 3

⁶³ HASIČSKÝ ZÁCHRANNÝ SBOR STŘEDOČESKÉHO KRAJE. *Tragická nehoda cisterny s hydroxidem sodným na Rakovnicku*. Online. 2024. Available from: <https://hzscr.gov.cz/clanek/tragicka-nehoda-cisterny-s-hydroxidem-sodnym-na-rakovnicku.aspx> [cit. 2026-06-16].

⁶⁴ HASIČSKÝ ZÁCHRANNÝ SBOR ČESKÉ REPUBLIKY. *Statistická ročenka Hasičského záchranného sboru České republiky 2025*. Online. 2026. Available from: <https://hzscr.gov.cz/clanek/statisticke-rocenky-hasicskeho-zachranneho-sboru-cr.aspx> [cit. 2025-03-07].

assistance under the TRINS system, FP units from the member companies ČEPRO Ltd. and DEKONTA Ltd. were dispatched to the accident site; they carried out firefighting operations using mobile firefighting equipment or delivered foam concentrate in Intermediate Bulk Containers (IBC). An FP unit from DEKONTA Ltd. was dispatched to the accident site, where it installed cofferdams in the flooded gravel pits and mapped the contamination plume and the direction of benzene migration in the rock environment. Benzene was extracted from the groundwater table, and a remediation plan was developed, including the construction of a Larsen wall. The company also removed benzene from the rock environment and groundwater and built a remediation center to treat approximately 300 m³ of groundwater.⁶⁵ The response by FP units and other IRS response units, including environmental remediation and monitoring, lasted until July 15, 2025, when DEKONTA Ltd. completed the trial operation of the stripping tower and catalytic incinerator. The treatment of contaminated water containing dissolved benzene began using high-capacity activated carbon filters.

As of November 1, 2025, the state-owned enterprise DIAMO took over the remediation work.⁶⁶ Long-term monitoring of air quality, surface water, and groundwater is being conducted at the site in question, in cooperation with environmental protection authorities and specialized remediation companies. In the long term, we cannot rule out the possibility that contamination will spread toward the Bečva river, with contamination expected to appear in the Hustopeče recreational sandpit, a remnant of the Bečva river's former course, in approximately three years.⁶⁷ According to publicly available sources, the incident is classified as one of the world's largest environmental disasters involving a benzene spill. Until now,⁶⁸ that distinction had been held by the 2005 accident in China following an explosion at the Jilin Petrochemical Corporation plant, which resulted in a benzene spill three times smaller.⁶⁹

⁶⁵ Svaz chemického průmyslu České republiky a ORLEN UNIPETROL RPA s.r.o. – Republikové koordinační středisko TRINS. Výroční zpráva. Vyhodnocení činnosti systému TRINS za rok 2025. Litvínov, 2026.

⁶⁶ MINISTERSTVO ŽIVOTNÍHO PROSTŘEDÍ. *Sanaci po benzenové havárii v Hustopečích nad Bečvou bude zajišťovat DIAMO*. Online. 2025. Available from: <https://mzp.gov.cz/cz/pro-media-a-verejnost/aktuality/archiv-tiskovych-zprav/sanaci-po-benzenove-havarii-v-hustopecich> [cit. 2025-03-07].

⁶⁷ MOTHLEJ, Petr. Havárie Hustopeče. *Havárie nákladního vlaku Pn 52690 s nákladem 17 cisternových vozů obsahujících celkově 1020 t benzenu*. DEKONTA a.s., 2025. Prezentace sanačních prací.

⁶⁸ FORUM 24. *U Hustopečí došlo k největší havárii s benzenem na světě, tvrdí ministerstvo. Hrozí kontaminace vody*. Online. 2025. Available from: <https://www.forum24.cz/u-hustopeci-doslo-k-nejvetsi-havarii-s-benzenem-na-svete-tvrdi-ministerstvo-hrozi-kontaminace-vody> [cit. 2025-03-23].

⁶⁹ WIKIPEDIE. OTEVŘENÁ ENCYKLOPEDIE. *Výbuch chemické továrny v provincii Ťi-lin*. Online. 2024. Available from: https://cs.wikipedia.org/wiki/V%C3%BDbuch_chemick%C3%A9_tov%C3%A1rny_v_provincii_%C5%A4i-lin [cit. 2025-03-23].

Figure 3: Railway accident involving the transport of benzene in the Olomouc Region, Přerov District, Hustopeče nad Bečvou, 2025⁷⁰



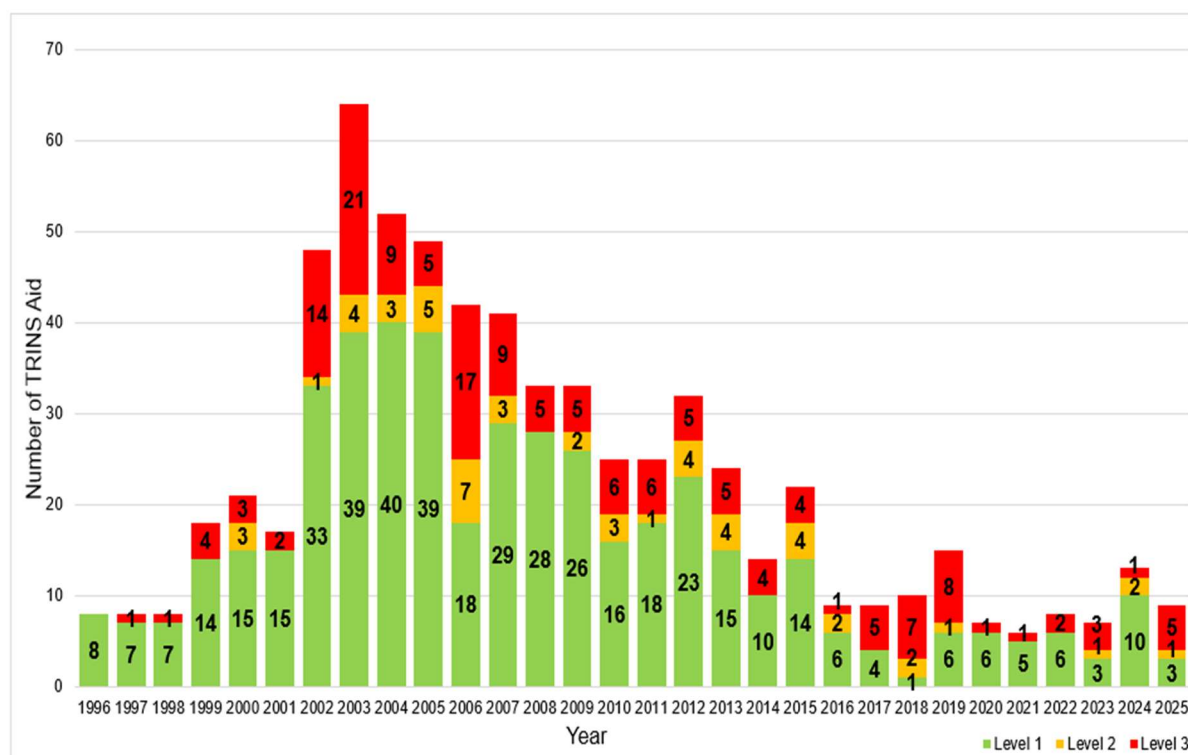
6.2 Statistical data from 1996 to 2025

6.2.1 TRINS usage statistics

The TRINS system plays an important role in the safety of DG transport. Between 1996 and 2025, assistance was provided in a total of 677 recorded cases, including international ones. According to the annual reports on the activities of the TRINS system, a total of 464 cases of Level 1 assistance (telephone inquiries and consultations), 53 cases of Level 2 assistance (dispatch of specialists to the site of the incident), and 160 cases of Level 3 assistance (technical assistance) were recorded over the 30 years. Statistical data on TRINS system usage in the observed period is presented in Chart 1. In the context of international cooperation, the TRINS National Coordination Center is contacted annually through the European ICE systems. This involves verifying emergency phone and fax numbers, conducting ring tests, or performing sophisticated tests to provide the required information regarding DG. These readiness checks carried out by foreign centers demonstrate the very good level of readiness and alertness of the permanent service of the TRINS National Coordination Center.⁷¹

⁷⁰ Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, Communications Department, Documentation Unit.

⁷¹ Svaz chemického průmyslu České republiky a ORLEN UNIPETROL RPA s.r.o. – Republikové koordinační středisko TRINS. Výroční zpráva. Vyhodnocení činnosti systému TRINS za rok 2025. Litvínov, 2026.

Chart 1: TRINS usage statistics from 1996 to 2025⁷²

6.2.2 Emergency incident statistics

It is a well-known fact that, in the event of an emergency, the relevant components of the IRS intervene according to the type or nature of the accident. The spectrum of their activities is very broad. In this area, firefighting units intervene in emergencies that are classified as hazardous chemical spills (hereinafter referred to as “HCHS”), which are further subdivided into oil product spills. Interventions in emergencies that may be related to the leakage of hazardous substances, the need to handle or remove them, may also be classified as technical accidents, including, for example, technical assistance, technological assistance, or other assistance. However, the primary nature of these events requiring the intervention of firefighting units is different. The presence of DG or their leakage may be a secondary problem and thus an incidental accompanying factor. These events are not analyzed further for the purposes of this publication, as the resulting information would be misleading. In the Statistical Yearbook of the FRS CR, HCHS is defined as an intervention in an event associated with the unwanted release of hazardous chemicals, including petroleum products (during production, transport, or handling) and other substances. The intervention is aimed at limiting or reducing the risk of uncontrolled leakage of flammable, explosive, corrosive, toxic, harmful, radioactive, and other DG, petroleum products, or other substances into the environment, such as natural gas, acids and their salts, alkalis, ammonia, and the like, including major accidents under the Major Accidents Prevention Act.⁷³ An oil spill, or oil accident, involves an intervention

⁷² TRINS National Coordination Center, ORLEN UNIPETROL RPA Ltd., Litvínov-Záluží.

⁷³ Czech Republic, 2015. Zákon č. 224/2015 Sb., o prevenci závažných havárií způsobených vybranými nebezpečnými chemickými látkami nebo chemickými směsmi a o změně zákona

primarily aimed at preventing spills and limiting their extent exclusively to petroleum products, such as gasoline, diesel fuel, or oil. Spills of these substances from vehicle fuel tanks as a result of a traffic accident are classified as traffic accidents.⁷⁴

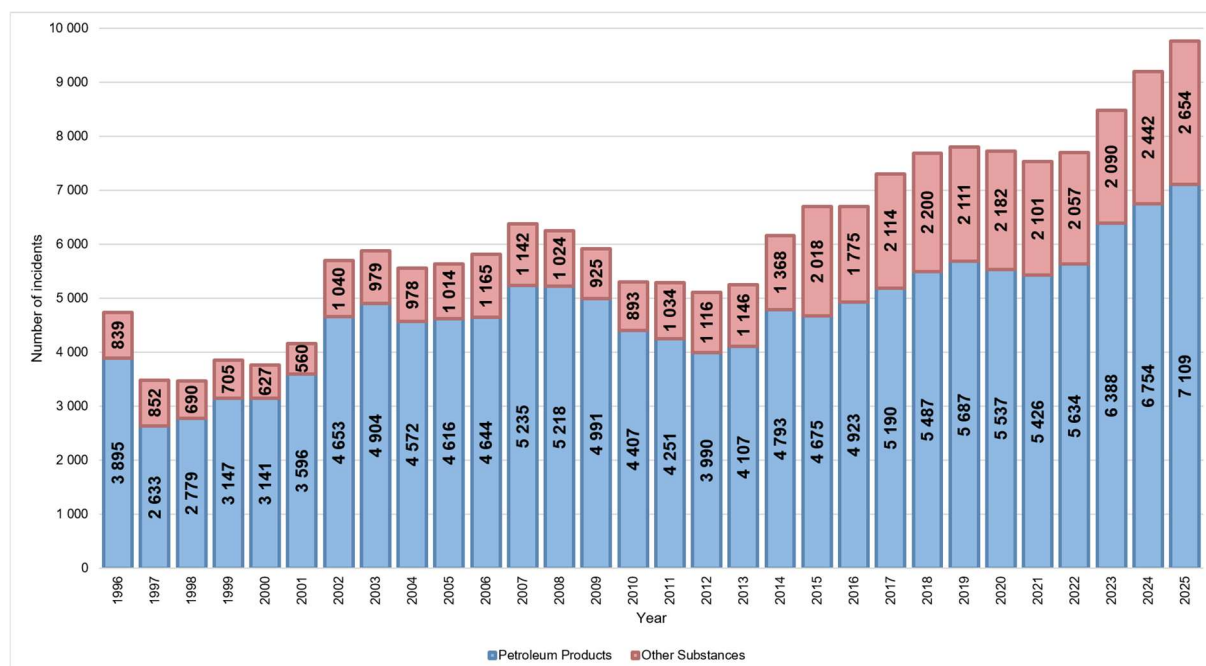
According to statistical data, FP units responded to a total of 168,188 incidents in 2025, of which 147,321 were fire unit responses and 20,867 were other activities. Compared to 2024, there was a decrease in the number of major incidents, mainly because there were no extensive floods threatening the CR in 2025. However, in 2025, a major accident occurred: a railway accident involving a freight train carrying benzene in the Olomouc Region, within the municipal area of Hustopeče nad Bečvou in the Přerov District. In the five-year period from 2021 to 2025, there was a gradual increase in the number of HCHS incidents, with FP units responding to 7,527 incidents in 2021, of which 5,426 were oil product spills, and in 2025, they responded to 9,763 incidents, of which 7,109 were oil product spills. These incidents account for 6.6% of the total number of interventions. The highest numbers of HCHS-related interventions in 2025 were in the Ústí nad Labem Region with 1,269, the Central Bohemian Region with 1,219, and the Capital City of Prague with 1,011 incidents. The lowest number of interventions was recorded in the Zlín Region with 322 HCHS incidents.⁷⁵

From a long-term perspective, HCHS incidents in the period 1996–2025 tend to have lower statistical values compared to other types of emergencies. The total number of HCHS over the observed period is shown in Chart 2. Statistics maintained by the FRS CR until 2001 defined types of emergencies differently (oil spills and chemical leaks); however, this fact is irrelevant for the purpose of observing trends in the selected statistical data set. It is thus possible to present the development of HCHS from 1996 to 2025, i.e., 30 years since the Agreement was concluded. Comparison of the total statistical data on assistance provided by the TRINS system with the number of emergencies classified as HCHS clearly shows that these are entirely negligible figures.

č. 634/2004 Sb., o správních poplatcích, ve znění pozdějších předpisů (zákon o prevenci závažných havárií). In: *Sbírka zákonů České republiky*. 2015. Issue 93, pp. 2762–2801. ISSN 1211-1244.

⁷⁴ HASIČSKÝ ZÁCHRANNÝ SBOR ČESKÉ REPUBLIKY. *Statistická ročenka Hasičského záchranného sboru České republiky 2025*. Online. 2026. Available from: <https://hzscr.gov.cz/clanek/statisticke-rocenky-hasicskeho-zachranneho-sboru-cr.aspx> [cit. 2025-03-07].

⁷⁵ HASIČSKÝ ZÁCHRANNÝ SBOR ČESKÉ REPUBLIKY. *Statistická ročenka Hasičského záchranného sboru České republiky 2025*. Online. 2026. Available from: <https://hzscr.gov.cz/clanek/statisticke-rocenky-hasicskeho-zachranneho-sboru-cr.aspx> [cit. 2025-03-07].

Chart 2: Statistics on hazardous chemical releases from 1996 to 2025⁷⁶

7. Current situation in the chemical industry

In connection with the TRINS system, it is worth briefly assessing the current state of the chemical industry, from which this system historically emerged. In recent years, the chemical industry in the EU has been facing significant economic pressures, leading to a gradual decline in production and the closure of certain facilities. According to the data from the CHIA CR, European production capacity has declined by approximately 9% over the past five years, and the trend of facility closures continues. The main causes of this development include, above all, high energy prices and costs associated with CO₂ emission allowances, which significantly increase the production costs of European companies. These costs are subsequently reflected in the prices of final products, which reduces the competitiveness of European manufacturers relative to entities from regions where energy inputs are cheaper and regulations are less stringent. According to CEFIC data, production capacity declined by approximately 37 million tons between 2020 and 2025, representing one of the most significant declines in the history of the European chemical industry. The factors mentioned above place European and thus Czech manufacturers at a significant disadvantage compared to competitors from the U.S., China, and the Middle East, where energy inputs are significantly cheaper. Significant impacts are evident, for example, at SPOLANA Neratovice Ltd., which, as part of its restructuring, has significantly curtailed production and reduced its workforce to roughly a quarter of its original size. Other major market players, such as DEZA Ltd.; LOVOCHEMIE Ltd.; PRECHEZA Ltd.; DRASLOVKA Ltd.; and FOSFA Ltd., are revising their investment plans and adapting production to current market conditions. However, the unavailability of key chemical raw materials poses a fundamental risk not only to the chemical industry itself but also to a wide range of related sectors. Chemical intermediates, such as ethylene, propylene, ammonia,

⁷⁶ Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, Department of Operational Management Support and Statistics.

and specialized organic compounds, are essential inputs for the automotive, pharmaceutical, food, packaging, and defense industries. Any restriction on their production or disruption of supply chains can lead to production outages, manufacturing delays, price increases, and, in extreme cases, even the temporary shutdown of certain operations. These impacts subsequently ripple through the entire economy, as these sectors form the backbone of European industrial production. Expert analyses therefore warn that the ongoing decline of the chemical industry in Europe could have far-reaching economic consequences that will affect not only industrial production but also employment, export performance, and the EU's overall economic stability. Europe thus faces the threat of structural weakening, which could fundamentally undermine its competitiveness on a global scale. At the same time, the risk of Europe's deindustrialization is deepening, a phenomenon perceived by experts as unprecedented. While other regions of the world, particularly the U.S., the Middle East, and Asia, are investing heavily in the development of the chemical industry, Europe faces a combination of high costs, regulatory constraints, and delayed implementation of strategic measures. The paradox is that chemicals whose production has been restricted in the EU are subsequently imported from great distances, often by ship using heavy fuel oil, which results in a higher carbon footprint than if they were produced directly in Europe. Another problem is the fact that Europe is currently the only region that strictly adheres to World Trade Organization rules, while other regions often circumvent or ignore these rules. This further puts European companies at a disadvantage in the global market.

Furthermore, due to the current geopolitical situation, at the time this article was written, an armed conflict was underway in Iran, which had a direct impact on the prices of oil and natural gas, key raw materials for the chemical and petrochemical industries. The sharp rise in the prices of these commodities led to a further increase in production costs and exacerbated problems with the availability of raw materials. According to companies affiliated with the CHIA CR, a long-term escalation of the conflict could cause serious disruptions to supply chains, which would have devastating consequences not only for Czech but also for European companies. Furthermore, the European market is heavily dependent on imports of certain chemicals from the Middle East. Any disruption to these flows could lead to production outages, further price increases, and, in extreme cases, even the temporary shutdown of certain businesses. These developments pose a significant risk to the stability of an already weakened chemical sector.

Conclusion

The debate over the future of the TRINS system is often conducted in technical and organizational terms, focusing on who will ensure readiness, how the flow of information will be accelerated, and which data sources will be integrated. However, such reasoning is insufficient on its own. The TRINS system is primarily a security tool for the state and industry, the purpose of which is derived from the protection of life, health, the environment, and the continuity of society's basic functions during incidents involving DG. In the Czech practice, the TRINS system has long been based on a partnership model between the state, represented by the Mol-GD FRS CR, and the chemical industry, represented by the CHIA CR, which is an important example of shared responsibility in risk management from the perspective of security theory.

From a security theory perspective, the Czech chemical industry is part of the broader critical infrastructure framework. It comprises assets, networks, and systems essential for the provision of basic services to the state and society, the disruption of which would have serious consequences. Furthermore, the modern legal framework in the CR explicitly links the enhancement of critical infrastructure entities' resilience with crisis management. This means that the question of the future of the TRINS system effectively overlaps with the question of how the state and industry will jointly maintain and develop the ability to manage emergencies in an environment of growing complexity. The key concept capable of capturing this complexity is resilience. In the security discourse, resilience is understood as a system's ability to withstand disruption, maintain essential functions, and adapt. It is therefore not merely about recovery after a crisis, but about the ability to learn, change procedures, and prevent escalation.⁷⁷ In the Czech context, resilience is increasingly gaining ground as an organizational principle of national security and societal stability.⁷⁸ In other words, it makes no sense to assess the future of the TRINS system solely on the basis of whether it functions, but rather on whether it contributes to the resilience of the state and industry against disruptions – technical, organizational, and societal.

This framework takes on particular significance in the era of hybrid threats, which are not defined as a single type of attack, but as a method of coordinated action combining overt and covert means across various domains such as information, cyberspace, the economy, political pressure, and others with the aim of exploiting vulnerabilities and complicating the decision-making of the targeted actor.⁷⁹ In the European context, hybrid threats are understood as coordinated harmful activities carried out with hostile intent, often combining multiple means and deliberately remaining below the threshold of "clearly identifiable" aggression.⁸⁰ In such an environment, the chemical industry becomes not only an object of protection due to physical risks but also an attractive target for hybrid operations precisely because of its systemic importance (substances, logistics, energy links, impacts on the public).

This leads to a fundamental conclusion for the TRINS system. Its future is not measured solely by the speed of consultation or response, but by whether it becomes an integrating element among emergency services of the IRS, public administration, and industry within the broader context of critical infrastructure protection and resilience. Practical experience with the TRINS system shows that it is based on operationally applicable expertise and the ability to organize assistance in stages, ranging from consultation to the deployment of personnel and resources. It is precisely this multi-layered approach that is compatible with the concept of resilience, as it allows

⁷⁷ OBRANA A STRATEGIE. *Resilience in the national security discourse*. Online. 2017. Available from: <https://www.obranaastrategie.cz/filemanager/files/424541.pdf> [cit. 2026-03-13].

⁷⁸ SDRUŽENÍ LÍPA. *Národní resilience České republiky versus fragmentovaná společnost*. Online. 2019. Available from: <https://www.lipa.cz/doc/43/Jiri%20Sedivy%20-%20Resilience%20CR%20versus%20fragmentovana%20spolecnost.pdf> [cit. 2026-03-13].

⁷⁹ MINISTERSTVO VNITRA ČESKÉ REPUBLIKY. *Co jsou hybridní hrozby*. Online. 2026. Available from: <https://mv.gov.cz/chh/clanek/co-jsou-hybridni-hrozby.aspx> [cit. 2026-03-13].

⁸⁰ EUROPEAN COUNCIL. COUNCIL OF THE EUROPEAN UNION. *Hybrid threats*. Online. 2025. Available from: <https://www.consilium.europa.eu/en/policies/hybrid-threats/> [cit. 2026-03-13].

the response to be scaled and adapted to the nature of the incident. At the same time, however, one cannot avoid the broader question: what will the future of the Czech chemical industry as such look like? If the industrial base were to erode, the state would not gain “less risk”, but rather less direct control over risks, which would shift to longer and more vulnerable supply chains. This is an interpretive argument drawn from security studies; it is not a statement based on specific economic data. From a resilience perspective, therefore, it makes sense to view the chemical industry as a capacity that, when properly managed, enhances the state’s security resilience, as it provides the technical expertise, material resources, and organizational preparedness needed for crisis situations. It can be said that the dilemma of the TRINS system versus the chemical industry is a false one. The future of the TRINS system and the future of the Czech chemical industry are two sides of the same coin: the state’s ability to protect critical functions and maintain the continuity of essential services in an environment of complex and hybrid threats. In this sense, the TRINS system is not only an operational tool but also a testing ground for the practical implementation of resilience, provided it is strategically anchored in the protection of critical infrastructure and in the cross-sectoral cooperation that the Czech implementation of the TRINS system has long exemplified.

In conclusion, it can be stated that the TRINS system provides state support to the chemical industry, which, however, must remain operational and continue to manufacture its products. If, however, its gradual decline were to continue, it is questionable whether and how this operational tool would function. As mentioned above, the chemical industry should, on the contrary, be part of critical infrastructure protection and resilience, as its supply chains can be absolutely essential during times of unstable security situations. Whether the TRINS system will continue to operate on the same or a similar scale, or whether it will be gradually phased out until completely abolished, will likely be decided in the near future. It is clear that the viability, or rather the operational readiness, of the forces and resources of the member companies of the TRINS system is by no means determined by the number of interventions at emergencies, but primarily by the economic performance of individual manufacturing companies in the European chemical industry, with implications for the global economy.

References

- Czech Republic, 1994. Zákon č. 111/1994 Sb., o silniční dopravě a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 1994. Issue 37, pp. 1154–1184.
- Czech Republic, 1994. Zákon č. 266/1994 Sb., o drahách a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 1994. Issue 79, pp. 3041–3054.
- Czech Republic, 2000. Zákon č. 239/2000 Sb., o integrovaném záchranném systému a o změně některých zákonů. In: *Sbírka zákonů České republiky*. 2000. Issue 73, pp. 3461–3474. ISSN 1211-1244.
- Czech Republic, 2006. Sdělení Ministerstva zahraničních věcí č. 49/2006 Sb. m. s., o sjednání Protokolu z 3. června 1999 a změně Úmluvy o mezinárodní železniční přepravě (COTIF) z 9. května 1980. In: *Sbírka mezinárodních smluv České republiky*. 2006. Issue 26, pp. 922–1168. ISSN 1801-0393.
- Czech Republic, 2011. Sdělení Ministerstva zahraničních věcí č. 102/2011 Sb. m. s., o Evropské dohodě o mezinárodní přepravě nebezpečných věcí po

- vnitrozemských vodních cestách (ADN). In: *Sbírka mezinárodních smluv České republiky*. 2011. Issue 53, pp. 8302–10220. ISSN 1801-0393.
- Czech Republic, 2013. Nařízení vlády, kterým se mění nařízení vlády č. 1/2000 Sb., o přepravním řádu pro veřejnou drážní nákladní přepravu, ve znění nařízení vlády č. 295/2000 Sb. In: *Sbírka zákonů České republiky*. 2013. Issue 177, p. 7753. ISSN 1211-1244.
- Czech Republic, 2015. Zákon č. 224/2015 Sb., o prevenci závažných havárií způsobených vybranými nebezpečnými chemickými látkami nebo chemickými směsmi a o změně zákona č. 634/2004 Sb., o správních poplatcích, ve znění pozdějších předpisů (zákon o prevenci závažných havárií). In: *Sbírka zákonů České republiky*. 2015. Issue 93, pp. 2762–2801. ISSN 1211-1244.
- Czech Republic, 2015. Zákon č. 320/2015 Sb., o Hasičském záchranném sboru České republiky a o změně některých zákonů (zákon o hasičském záchranném sboru). In: *Sbírka zákonů České republiky*. 2015. Issue 135, pp. 4307–4324. ISSN 1211-1244.
- Czech Republic, 2016. Dohoda o spolupráci mezi Ministerstvem vnitra – generálním ředitelstvím Hasičského záchranného sboru České republiky a Svazem chemického průmyslu České republiky. Transportní informační a nehodový systém TRINS. Č.j. MV-41884-1/PO-OPŘ-2016. Praha, 2016.
- Czech Republic, 2019. Sdělení Ministerstva zahraničních věcí č. 38/2019 Sb. m. s., kterým se vyhlašuje konsolidované znění Evropské dohody o mezinárodní přepravě nebezpečných věcí po vnitrozemských vodních cestách (ADN). In: *Sbírka mezinárodních smluv České republiky*. 2019. Issue 24, pp. 5410–7544. ISSN 1801-0393.
- Czech Republic, 2023. Sdělení Ministerstva zahraničních věcí č. 15/2023 Sb. m. s., o přijetí změn Přílohy A – Všeobecná ustanovení a ustanovení týkající se nebezpečných látek a předmětů a Přílohy B – ustanovení o dopravních prostředcích a o přepravě Dohody o mezinárodní silniční přepravě nebezpečných věcí (ADR). In: *Sbírka mezinárodních smluv České republiky*. 2023. Issue 10, pp. 2722–5408. ISSN 1801-0393.
- Czech Republic, 2025. Metodický pokyn pro vyhodnocení poskytované pomoci TRINS. ORLEN UNIPETROL RPA s.r.o. – Úsek bezpečnosti. Litvínov, 2025.
- Czechoslovak Socialist Republic, 1985. Vyhláška ministra zahraničních věcí č. 8/1985 Sb. ze dne 2. srpna 1984, o Úmluvě o mezinárodní železniční přepravě (COTIF). In: *Sbírka zákonů Československé socialistické republiky*. 1987. Issue 2, pp. 0017–0068.
- Czechoslovak Socialist Republic, 1987. Vyhláška ministra zahraničních věcí č. 64/1987 Sb. ze dne 26. května 1987, o Evropské dohodě o mezinárodní silniční přepravě nebezpečných věcí (ADR). In: *Sbírka zákonů Československé socialistické republiky*. 1987. Issue 13, pp. 399–403.
- ENVIWEB. *Projekt ChemLog*. Online. 2010. Available from: <https://www.enviweb.cz/83885> [cit. 2025-02-25].
- EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and*

- Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.* Online. 2006. Available from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex%3A32006R1907> [cit. 2026-03-28].
- EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods (Text with EEA relevance).* Online. 2008. Available from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008L0068> [cit. 2026-03-21].
- EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance).* Online. 2008. Available from: <https://eur-lex.europa.eu/legal-content/CS/TXT/?uri=celex%3A32008R1272> [cit. 2026-03-21].
- EUR-LEX. ACCESS TO EUROPEAN UNION LAW. *Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC Text with EEA relevance.* Online. 2012. Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32012L0018> [cit. 2026-03-23].
- EUROPEAN CHEMICALS AGENCY. *Harmonised classification and labelling (CLH).* Online. 2026. Available from: <https://echa.europa.eu/regulations/clp/harmonised-classification-and-labelling> [cit. 2026-03-12].
- EUROPEAN COUNCIL. COUNCIL OF THE EUROPEAN UNION. *Hybrid threats.* Online. 2025. Available from: <https://www.consilium.europa.eu/en/policies/hybrid-threats/> [cit. 2026-03-13].
- FORUM 24. *U Hustopečí došlo k největší havárii s benzenem na světě, tvrdí ministerstvo. Hrozí kontaminace vody.* Online. 2025. Available from: <https://www.forum24.cz/u-hustopeci-doslo-k-nejvetsi-havarii-s-benzenem-na-svete-tvrdi-ministerstvo-hrozi-kontaminace-vody> [cit. 2025-03-23].
- HASIČSKÝ ZÁCHRANNÝ SBOR ČESKÉ REPUBLIKY. *Statistická ročenka Hasičského záchranného sboru České republiky 2025.* Online. 2026. Available from: <https://hzscr.gov.cz/clanek/statisticke-rocenky-hasicskeho-zachranneho-sboru-cr.aspx> [cit. 2025-03-07].
- HASIČSKÝ ZÁCHRANNÝ SBOR STŘEDOČESKÉHO KRAJE. *Tragická nehoda cisterny s hydroxidem sodným na Rakovnicku.* Online. 2024. Available from: <https://hzscr.gov.cz/clanek/tragicka-nehoda-cisterny-s-hydroxidem-sodnym-na-rakovnicku.aspx> [cit. 2026-06-16].
- INTERNATIONAL AIR TRANSPORT ASSOCIATION. *Dangerous Goods Regulations (DGR).* Online. 2026. Available from: <https://www.iata.org/en/publications/dgr/> [cit. 2025-02-25].
- INTERNATIONAL RAIL TRANSPORT COMMITTEE. *Convention concerning International Carriage by Rail (COTIF) of 9 May 1980 in the version of the Protocol of Modification of 3 June 1999. Applicable with effect from 1 July 2006.*

- Online. 2010. Available from: https://www.cit-rail.org/secure-media/files/documentation_de/passenger/cotif/cotif99_2010-12-01_fr-de-en_protocol.pdf?cid=422235 [cit. 2025-02-25].
- INTERNATIONAL RAIL TRANSPORT COMMITTEE. *Convention concerning International Carriage by Rail (COTIF) Appendix C – Regulation concerning the International Carriage of Dangerous Goods by Rail (RID)*. Online. 2025. Available from: https://www.cit-rail.org/media/files/cim-unterlagen/rid_2025_e_1_january_2025.pdf?cid=422244 [cit. 2025-02-25].
- INTERVENTION IN CHEMICAL TRANSPORT EMERGENCIES. *About ICE*. Online. 2022. Available from: <https://www.ice-chem.org/> [cit. 2025-02-25].
- KUBÁTOVÁ, Hana. *Průmyslová toxikologie a životní prostředí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2018. ISBN 978-80-7385-210-8.
- MEDIS-ALARM ONLINE. *Login*. Online. 2026. Available from: <https://www.medisalarm.cz/login/neopraveny> [cit. 2025-03-28].
- MINISTERSTVO DOPRAVY. *Dohoda ADR 2025. Přeprava nebezpečných věcí – Dohoda ADR*. Online. 2025. Available from: [https://md.gov.cz/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-\(1\)/Preprava-nebezpecnych-veci-dohoda-adr/Dohoda-ADR-2025?returl=/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-\(1\)/Preprava-nebezpecnych-veci-dohoda-adr](https://md.gov.cz/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-(1)/Preprava-nebezpecnych-veci-dohoda-adr/Dohoda-ADR-2025?returl=/Zivotni-situace/Silnicni-doprava/Nakladni-doprava-(1)/Preprava-nebezpecnych-veci-dohoda-adr) [cit. 2025-02-25].
- MINISTERSTVO VNITRA ČESKÉ REPUBLIKY. *Co jsou hybridní hrozby*. Online. 2026. Available from: <https://mv.gov.cz/chh/clanek/co-jsou-hybridni-hrozby.aspx> [cit. 2026-03-13].
- MINISTERSTVO ŽIVOTNÍHO PROSTŘEDÍ. *Sanaci po benzenové havárii v Hustopečích nad Bečvou bude zajišťovat DIAMO*. Online. 2025. Available from: <https://mzp.gov.cz/cz/pro-media-a-verejnost/aktuality/archiv-tiskovych-zprav/sanaci-po-benzenove-havarii-v-hustopecich> [cit. 2025-03-07].
- Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, Communications Department, Documentation Unit.
- Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, Department of Operational Management Support and Statistics.
- MOTHLEJ, Petr. *Havárie Hustopeče. Havárie nákladního vlaku Pn 52690 s nákladem 17 cisternových vozů obsahujících celkově 1020 t benzenu*. DEKONTA a.s, 2025. Prezentace sanačních prací.
- OBRANA A STRATEGIE. *Resilience in the national security discourse*. Online. 2017. Available from: <https://www.obranaastrategie.cz/filemanager/files/424541.pdf> [cit. 2026-03-13].
- ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Střediska TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Stranky/strediska-trins.aspx> [cit. 2025-02-25].
- ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Mapa středisek TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Stranky/mapa-trins.aspx> [cit. 2025-02-25].
- ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Podmínky, cíle a funkce TRINS*. Online. 2026. Available from: <https://www.unipetrolrpa.cz/CS/sluzby->

- areal/trins/Documents/Seznam%20%C3%A1tek%20TRINS.pdf [cit. 2025-02-25].
- ORLEN UNIPETROL RPA. *Služby a areál/ TRINS/ Podmínky, cíle a funkce TRINS*. Online. 2026. Available from: https://www.unipetrolrpa.cz/CS/sluzby-areal/trins/Documents/VZ_TRINS.pdf [cit. 2025-02-25].
- PRAKTICKÁ LOGISTIKA. *Nebezpečný náklad. Třicet let systému TRINS*. Online. 2026. Available from: <https://www.praktickalogistika.cz/nebezpecny-naklad/tricet-let-systemu-trins/> [cit. 2026-03-12].
- SDRUŽENÍ LÍPA. *Národní resilience České republiky versus fragmentovaná společnost*. Online. 2019. Available from: <https://www.lipa.cz/doc/43/Jiri%20Sedivy%20-%20Resilience%20CR%20versus%20fragmentovana%20spolecnost.pdf> [cit. 2026-03-13].
- SIKOROVÁ, Kateřina and Kateřina BLAŽKOVÁ. *Analýza dopadů havárií s účastí nebezpečné látky na životní prostředí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2018. ISBN 978-80-7385-211-5.
- SVAZ CHEMICKÉHO PRŮMYSLU ČR. *Využití projektu ChemLog T&T*. Online. 2017. Available from: <https://www.schp.cz/info/vyuziti-projektu-chemlog-t@t> [cit. 2025-02-25].
- SVAZ CHEMICKÉHO PRŮMYSLU ČR. *25 let Responsible Care v České republice*. Online. 2019. Available from: https://www.responsiblecare.cz/media/support_files/25let_RC_v_CR_2019_dm4L9UV.pdf [cit. 2025-02-25].
- SVAZ CHEMICKÉHO PRŮMYSLU ČR. NCHL.CZ. *Příručka. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.nchl.cz/prilohyarchiv/r3/P%C5%98%C3%8DRU%C4%8CKA%20NCHLCZ.pdf> [cit. 2026-03-12].
- SVAZ CHEMICKÉHO PRŮMYSLU ČR. NCHL.CZ. *Hodnotící zpráva. Bezpečné nakládání s nebezpečnými chemickými látkami v rámci dodavatelsko-odběratelského řetězce*. Online. 2026. Available from: <https://www.schp.cz/prilohyarchiv/2710/Hodnot%C3%ADc%C3%AD%20zpr%C3%A1va%20Projektu%20BOZP%202025%20NCHL.pdf?v=202601082x4Q9f7rgmCHwPLO2745> [cit. 2026-03-12].
- Svaz chemického průmyslu České republiky a ORLEN UNIPETROL RPA s.r.o. – Republikové koordinační středisko TRINS. *Výroční zpráva. Vyhodnocení činnosti systému TRINS za rok 2025*. Litvínov, 2026.
- TRINS National Coordination Center, ORLEN UNIPETROL RPA Ltd., Litvínov-Záluží.
- United Nations Geneva, 2019. *Recommendations on the transport of dangerous goods. Model Regulations. Volume I. Twenty-first revised edition*. Online. 2019. Available from: https://unece.org/fileadmin/DAM/trans/danger/publi/unrec/rev21/ST-SG-AC10-1r21e_Vol1_WEB.pdf [cit. 2025-03-28].
- United Nations Geneva, 2024. Economic Commission for Europe Inland Transport Committee. ADR applicable as of January 1, 2025. Agreement Concerning the

- International Carriage of Dangerous Goods by Road. Volume I. *ECE/TRANS/352/Vol. 1*. ISBN 978-92-1-003149-3.
- United Nations Geneva, 2024. Economic Commission for Europe Inland Transport Committee. ADR applicable as of January 1, 2025. Agreement Concerning the International Carriage of Dangerous Goods by Road. Volume II. *ECE/TRANS/352/Vol. 2*. ISBN 978-92-1-003149-3.
- VĚŽNÍKOVÁ, Hana. *Transport nebezpečných věcí*. Vydání 1. Ostrava: Sdružení požárního a bezpečnostního inženýrství, 2019. ISBN 978-80-7385-217-7.
- WIKIPEDIE. OTEVŘENÁ ENCYKLOPEDIE. *Výbuch chemické továrny v provincii Ťi-lin*. Online. 2024. Available from: https://cs.wikipedia.org/wiki/V%C3%BDbuch_chemick%C3%A9_tov%C3%A1rna_v_provincii_%C5%A4i-lin [cit. 2025-03-23].

PhDr. Mgr. Miroslav Matouš, Ph.D., MBA (*1980)

The author of the article has been professionally employed for a long time by the Fire Rescue Service of the Czech Republic. He also actively works in fire protection units. The author focuses on the issue of the Integrated Rescue System with a focus on operational management. As part of his current position at the National Operations and Information Center of the Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, he evaluates emergencies affecting TRINS based on information provided by fire protection units and cooperates with other entities within this system. He is a graduate of the Master's degree program Security Management in Public Administration, including Rigorosum proceedings at the Faculty of Security Management of the Police Academy of the Czech Republic in Prague. In the following years, he graduated from this university with a Doctoral degree in Security Management and Criminalistics. He also completed his Master's degree in European Studies and Public Administration at the Metropolitan University Prague. As part of his professional education, he completed a Master of Business Administration program in crisis management at the University of Postgraduate Studies in Prague.

Ing. David Gabriš, Ph.D. (*1982)

The author of the article graduated from the University of Chemistry and Technology in Prague in 2006 with a degree in Inorganic Materials Technology. In 2014, he successfully defended his dissertation there as part of his doctoral studies. After completing his studies, the author began working at Euro Support Manufacturing Czechia, a small company specializing in the manufacture of catalysts, in the position of a systems engineer, where he was responsible for the implementation of the REACH and CLP regulations. Currently, the author works at ORLEN UNIPETROL RPA Ltd., based in Litvínov, Záluží, as a safety advisor for the transport of dangerous goods by road and rail.

PhDr. Tomáš Kudrna (*1973)

The author of the article has spent his entire professional life working for chemical and pharmaceutical manufacturing, distribution, and development companies. For the past five years, he has been working for the Association of the Chemical Industry of

the Czech Republic, where he currently deals with issues related to responsible business practices in the chemical industry (Responsible Care) and their connection to ESG reporting standards, as well as chemical logistics and the care and maintenance of property. As part of his job, he has been working on the development of the TRINS system for a long time, dealing with chemical legislation issues and participating in professional projects focused on occupational health and safety. The author is a graduate of a Master's degree program in technical education for secondary schools, including Rigorosum proceedings at Charles University's Faculty of Education in the field of adult education in chemical disciplines.

Ing. Ivan Souček, Ph.D. (*1959)

The author of the article graduated in chemical engineering in 1982 and gained his Ph.D. in Economics in 2009. His initial career took place in KAUČUK Kralupy nad Vltavou in technical positions and strategic planning. In 1995, he became a member of the BOD of Unipetrol, later CEO of KORAMO Kolín, and subsequently CEO of Joint Venture of ČESKÁ RAFINÉRSKÁ. In 2012–2015, he worked as a project manager and supervisory board member in HIPPI/NIS. Since 2016, Ivan Souček has been the director of the Association of the Chemical Industry of the Czech Republic. He studied at DePaul University and Scuola E. Mattei as well as production management in Tokyo. He is a co-author of ten books on strategic planning and investment decision-making and more than a hundred articles and conference papers focused on the refining and petrochemical industry and renewables.

Ing. Roman Franci (*1974)

The author graduated in Fire Protection Engineering and Industrial Safety from VŠB – Technical University of Ostrava in 1997. He has been professionally active for more than 25 years within the Fire Rescue Service of the Czech Republic, specializing mainly in the Integrated Rescue System, operational management and international assistance. Throughout his career, he has focused on the coordination of activities among central administrative authorities, core services of the Integrated Rescue System and other involved entities during emergency situations and preparation for their management. He has been involved in the preparation and amendment of legislation, internal regulations and methodologies in the fields of the Integrated Rescue System, fire units, disaster management and civil protection, including the development of standard operating procedures for managing large-scale or complex emergencies. He has also contributed to the preparation and execution of national and international exercises, as well as to professional conferences both as a participant and a speaker. In his current role as the Head of the National Operations and Information Center of the Ministry of the Interior – General Directorate of the Fire Rescue Service of the Czech Republic, he is engaged in the coordination and evaluation of emergency situations, including those related to the TRINS system, in cooperation with national and international partners. The author has also gained international experience, including his 5-year service at the Emergency Response Coordination Centre of the European Commission, where he contributed to the coordination of international disaster response operations.