



OTIF/RID/CE/GTP/2016/12

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RID: 7th Session of the RID Committee of Experts' standing working group
(Prague, 22 to 24 November 2016)

Subject: Risk reduction measures for chlorine imports into Switzerland –
Common Declaration II

Information transmitted by Switzerland

1. In Switzerland, risks in the transport of dangerous goods have been systematically identified and analysed for more than 20 years. In recent years, it has emerged that the carriage of chlorine in tank-wagons, in combination with the increased number of people living near railway lines, will lead to unacceptable risks in the medium term (see diagrams at annex). In parallel, there has been less willingness to accept risks with the potential to be very serious and the resulting restrictions on developing surrounding areas. Consequently, councils of the towns and cantons concerned and the national government have submitted numerous requests which, in extreme cases, even demanded a complete prohibition on the carriage of chlorine.
2. Since 2015, a working group at national level has been examining possible measures to make the carriage of chlorine by rail even safer. It analysed options in the areas of property protection, on-site production, procurement routes, transport provisions and tank-wagons. The area around the side of Lake Geneva was given particular attention, as bulk consumers in the Canton of Valais currently import chlorine mainly from France (from around Lyons/Grenoble) and transport it by rail along the side of Lake Geneva. Owing to the population growth and housing developments in this region, without suitable safety measures the risks here would increase too much in future.
3. The working group established clear aims for the risk reduction to be achieved and defined a corresponding package of measures targeted at chlorine imports into Switzerland. These aims and measures are set out in a Common Declaration II, in which the signatories (scienceindustries as an umbrella association of the chemical industry, SBB, the Loading Industry Association (VAP), the Federal Office of Transport (FOT) and the Federal Office for the Environment (FOEN)) commit themselves to implementing a first phase by the end of 2018 and a second phase by 2025.

4. The basis for this work is the Swiss “Major Accidents Ordinance” (*Störfallverordnung*)¹. This requires a risk assessment based on the probability and magnitude of possible incidents. The methodical evaluation of these factors enables the risk to be assessed objectively. Incidents in the carriage of chlorine are characterised by a very low probability, but also by a particularly high magnitude. Consequently, the parties wish to reduce the risk by a factor of 10 by the end of 2018. In a second phase, a further clear reduction is to be attempted. How this can be achieved proportionately in a technically feasible and economically acceptable manner will be set out in a roadmap by the end of 2018 for the period up to 2025. In so doing, the international acceptability of the measures will be tested, with the particular aim of avoiding the displacement of risks and ensuring interoperability.
5. The Common Declaration II follows on from an initial common declaration from 2002, which already included a range of measures to improve safety. Those measures were implemented by the end of 2010. Among other things, the measures included improvements in the safety of tank-wagons, some of which have been introduced into RID, and as an accompanying measure, prohibiting the carriage of chlorine by road in quantities of more than 1000 kg per transport unit.
6. The Common Declaration is attached (it is available in German, French, Italian and English, with German being the original version). Further information can be found on the website of the Federal Office for the Environment.²
7. The representative of Switzerland will keep the RID Committee of Experts’ standing working group informed of the results of the work on clarification and implementation set out in the Common Declaration II and would be pleased to respond to any questions.

¹ SR 814.012, <https://www.admin.ch/opc/de/classified-compilation/19910033/index.html>

² German:

<http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=de&msg-id=63906>

French:

<http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=fr&msg-id=63906>

Italian:

<http://www.bafu.admin.ch/dokumentation/medieninformation/00962/index.html?lang=it&msg-id=63906>

Annex: Diagrams

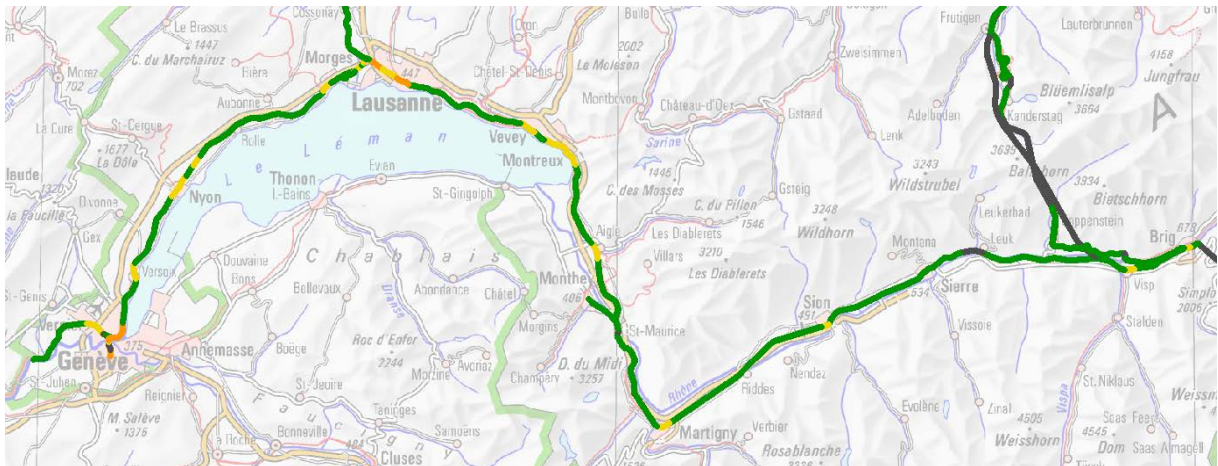


Diagram 1: Risk overview Geneva – Lausanne – Valais (Screening personal risks 2014, FOT). Green: Risk in the acceptable area / Yellow: Risk in the lower transitional area / Orange: Risk in the upper transitional area.

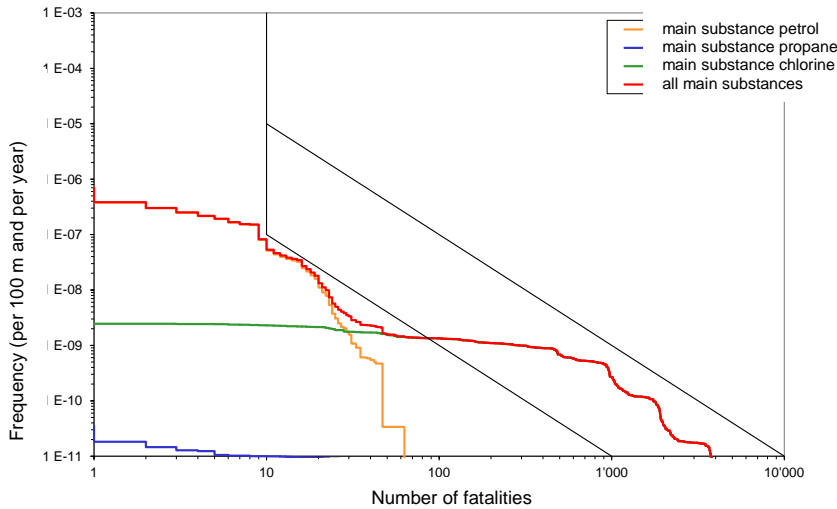


Diagram 2: Cumulative risk curve Geneva (segment A107) according to Screening, 2015 data. The risk is dominated by the main substance chlorine.

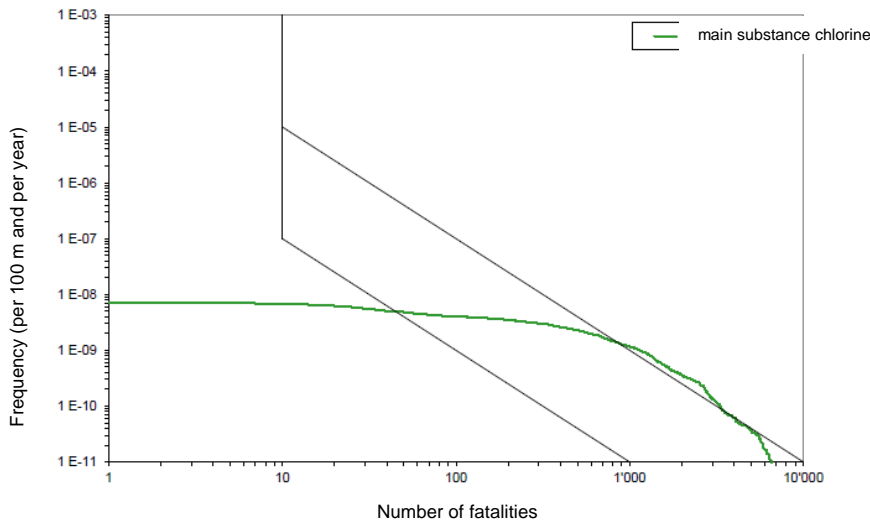


Diagram 3: Cumulative risk curve main substance chlorine Geneva (segment A107), forecast 2025. The cumulative curve is partially in the unacceptable range.

Common Declaration II

by

**scienceindustries (Business Association Chemistry Pharma
Biotech)**

and

Swiss Federal Railways AG (SBB AG)

and

VAP (Association of Freight Carriers)

and

**Federal Office of Transport
(FOT)**

and

**Federal Office for the Environment
(FOEN)**

on

**the reduction of the risks to the population resulting from the
transport of chlorine in tank wagons**

Preamble

Fuels, along with chemical precursors and preparations, are vital to our society and economy. The chemical industry and the transport of these goods play an important role here and their significance must be recognised in the long term. Producing, storing, transporting and using these hazardous goods within the existing traffic and settlement infrastructure always carries risks, which must be monitored on an ongoing basis and minimised wherever possible.

Rail transport is very safe and is therefore the best option for moving large quantities of hazardous goods. Nonetheless, accidents can never be completely ruled out. This also applies to the transport of chlorine in tank wagons, which carries with it considerable potential for damage as the release of chlorine into densely populated areas would have a severe impact on the population. Due to the development of settlements along the Lake Geneva basin and the quantities of chlorine being transported, monitoring has shown that these risks will continue to rise if countermeasures are not put in place and that there is a need for action.

The parties involved in chlorine transport and the cantons most greatly affected by it held a constructive dialogue to develop solutions that would reduce the risks posed by this activity. Together, they concluded that the hazardous good chlorine should continue being transported by rail, but that safety measures were necessary owing to the great potential for damage that an accident involving a chlorine tank wagon would entail.

This declaration therefore follows a first common declaration made by the Federal Department of the Environment, Transport, Energy and Communications (DETEC), scienceindustries and SBB AG in 2002, which already contained a number of measures for improving safety. These measures were implemented by late 2010. This Common Declaration II supplements the first declaration and lays the foundations for continued successful cooperation.

For these reasons, the signing parties agree the following:

1. Objectives

The Major Accidents Ordinance (MAO) calls for the protection of the population and the environment against severe harm due to incidents. In view of the potential for damage that an incident involving the transport of chlorine (UN 1017) in tank wagons would entail, all the parties involved must take the necessary and proportionate action to reduce the risks.

From 1 January 2019, the risks to the population posed by chlorine transport in tank wagons may no longer exceed the “middle of the transition area” according to the Assessment Criteria II for the Major Accidents Ordinance (MAO) of 2001 on any part of the Swiss railway network.¹ In order to guarantee this, the measures listed under Clause 2 are to be implemented in a first, short term phase, which must be rolled out as quickly as possible and no later than 31 December 2018.

¹ www.bafu.admin.ch/publikationen > Beurteilungskriterien II (Assessment Criteria II – not available in English)

The signing parties will continue their successful joint efforts to further improve the safety of chlorine handling. The initial short-term measures already represent a significant improvement in safety. A second phase will involve reducing the risk over the long term so that it is as close as possible to the acceptable range specified in the assessment criteria for the Major Accidents Ordinance. As part of this, options for further reducing the risk according to Clause 3 will be evaluated by the end of 2018 and will be summarised in a corresponding roadmap for the period to 2025 and implemented in accordance with the specified deadlines. Such measures must be proportionate, technically feasible and economically viable.

2. Measures

2.1 Organising chlorine procurement abroad

The industry will continue its efforts to procure chlorine from Italy for operations in Valais with the goal of reducing transport path lengths and avoiding urban agglomerations.

Furthermore, the industry and SBB commit to not distributing the risks across other transport routes than those currently used, except if the overall risk can be reduced when considering the network as a whole and the parties involved (see Clause 5) agree to this move. The affected cantons will be consulted. The average transport quantities as shown in Figure 1 of Annex 1 shall be used as a reference.

2.2 Using the safest tank wagons currently available

The industry undertakes to only procure chlorine from suppliers who transport the goods using tank wagons that have the best safety features currently available and exceed the relevant RID requirements as per Annex 2 as soon as possible but no later than from 1 January 2019.

In order to safeguard the necessary investments and hire contracts, the authorities also agree, on the other hand, not to initiate any tightening of the Swiss requirements for tank wagons before the end of 2025 that goes beyond the requirements defined in Annex 2, within the framework of the legislation in force.

2.3 Double transit and block trains

The FOT and the affected railway companies shall together investigate the extent to which chlorine can be transported in block trains (short special trains with chlorine wagons only) in Switzerland. If the safety- and security-related risks can be significantly reduced, the FOT will implement this measure via the infrastructure managers.

SBB Infrastructure shall optimise the transport paths in such a way that, where possible from an operational perspective, there is no double transit with chlorine tank wagons on the track network. The stationary risks at the place of use must also be taken into account here.

2.4 Speed reductions and operating times

SBB Infrastructure shall ensure that block trains carrying chlorine will run at a reduced speed of 40 km/h at all times.²

The transport runs must therefore be scheduled such that they do not impair other transport operations and do not lead to any limitations in the capacity of the SBB network.

2.5 Removing obstacles

SBB Infrastructure shall inspect the railway lines for obstacles that are not strictly necessary from an operational or technical standpoint but could increase the risk of chlorine being released during a derailment (damage to the tank wall) and shall remove these through proportional efforts. This shall be done by 2019 on the railway lines that bear risks relating to chlorine transport in the transition area, while on the remaining lines involved in chlorine transport the measures shall be implemented as part of the routine renovation and renewal work.

2.6 Checking the operational plans

By the end of 2018, SBB shall check the operational plans for routes bearing risks posed by chlorine transport in the transition area to ensure that they are suitable for dealing with

² One train path per day for freight trains with chlorine tank wagons has already been provided for from an operational standpoint, allowing these trains to travel through the urban agglomerations of Geneva (km 64.4 to km 58.5) and Renens-Lausanne (km 5.5 to km 0.8) at a reduced speed of 40 km/h maximum. Trains shall continue to travel at a reduced speed at the appropriate points on the line in question.

incidents involving chlorine. They will coordinate the operational plans with the relevant cantonal authorities.

2.7 Further safety measures

The Federal Office of Transport (FOT) can order the infrastructure managers to implement further measures that increase the safety of chlorine transport for the purpose of executing the Major Accidents Ordinance. These measures shall be reported as part of the monitoring process (Clause 5).

2.8 Introduction of transport restrictions

If the target “the middle of the transition area” cannot be achieved even after the above-mentioned measures have been implemented, the FOT shall introduce restrictions on the quantities of chlorine (UN 1017) that can be transported in tank wagons, following consultation with the parties involved (see Clause 5). These limitations shall apply to import, export and domestic traffic as well as to transit traffic.

2.9 International communication of the measures

The FOT shall notify the body responsible for international rail traffic (Intergovernmental Organisation for International Carriage by Rail, OTIF) of the introduction of quantity restrictions in good time.

In order to make the RID signatory states aware of the other operational measures that are to be implemented (Clause 2.3, 2.4 and 2.7), the FOT shall inform the OTIF of these in advance, indicating the necessity of the measures. It shall also inform the responsible authorities in the affected neighbouring countries directly.

2.10 Supporting measures

Assessment criteria for chlorine (UN 1017)

The FOEN shall work with the FOT and the affected stakeholders to draw up the “Assessment criteria for the transport of chlorine in tank wagons” by the end of 2017 (directive according to Article 22 of the MAO), which will look at the risks of chlorine

transport as a special case under the risks of hazardous goods transport due to its great potential for harm and will create a binding record of the objectives listed under Clause 1.

User-based transport costs

The FOT shall initiate the appropriate amendments to ordinances so that the costs of the measures (Clause 2.3 - 2.7) undertaken by the infrastructure manager (SBB) in order to comply with the objectives listed under Clause 1 and with the safety requirements and necessary preventive measures (including insurance premiums) along the infrastructure are mapped in the train-path pricing system. The industry acknowledges that the clearly identified costs of the safety measures (including insurance premiums) relating to the procurement of chlorine shall be passed on in full in the transport prices.

International regulations

The FOT shall declare to the committees responsible for international safety regulations for tank wagons that it is committed to further improving the standard (RID) within the sense of Clause 2.2. SBB AG and the industry (scienceindustries and VAP, including via their international associations [UIP, AIEP, CIT and ERFA]) shall support the corresponding proposals by the FOT.

Liability

The FOT shall inspect the amendments to the legislation, after which the liability law shall in future take into account the division of roles between infrastructure managers, transport companies, keepers and entities in charge of maintenance (ECM).

3. Options for further reducing the risks

The parties shall develop a roadmap for the second phase based on their objectives. Possible measures may include: Developing a completely new generation of tank wagons, procuring chlorine from northern Italy by renovating the facilities there or laying the groundwork for constructing a new chlorine production facility near major consumers.

4. Proviso

This common declaration is based on the assumption that existing laws are sufficient and shall remain unchanged from a transport safety perspective, unless this declaration itself explicitly puts forward amendments. If these laws are changed, this common declaration must be checked and, where necessary, amended.

5. Monitoring

The parties shall meet regularly – at least once a year – to regulate, monitor and discuss the implementation of the measures that are set out in this common declaration, as well as those that are yet to be defined (Chapter 2, 3 and 4), under the direction of the FOEN. They shall provide annual updates and ensure that the affected cantons are involved to an appropriate extent. The parties may enlist working groups to look at detailed technical issues.

If the FOT establishes that the measures in this declaration cannot be implemented on time or to a sufficient extent, or cannot be implemented at all, it shall, based on the applicable legal foundations, put forward these or alternative measures which aim to increase safety in different way.

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Annex 1: Organising chlorine procurement abroad in accordance with Clause 2.1

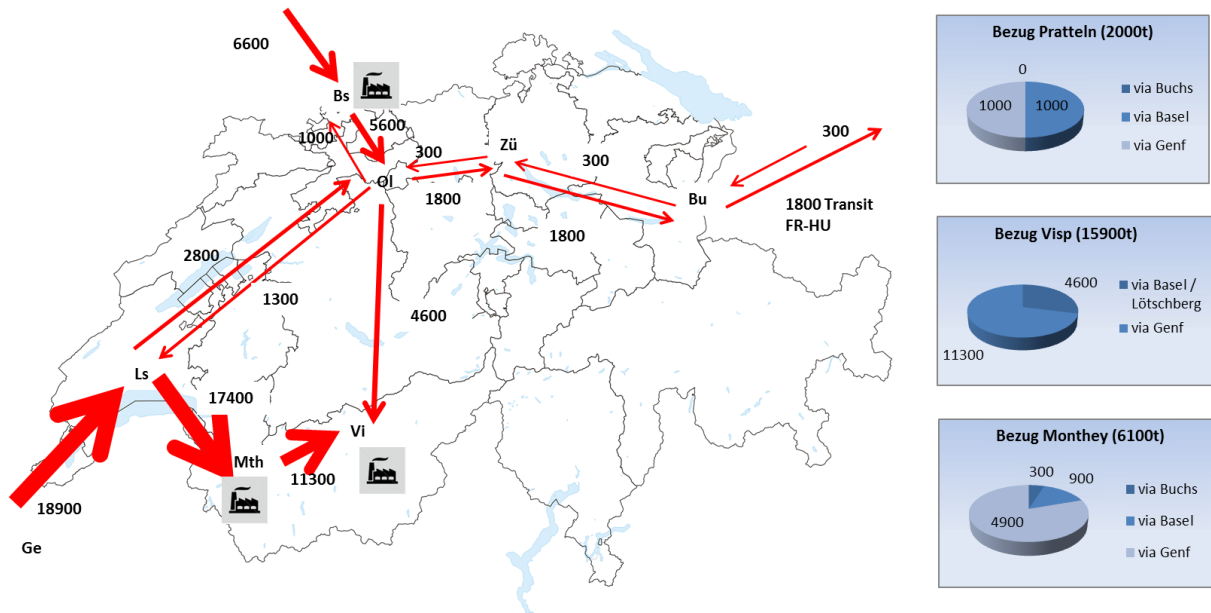


Figure 1 Chlorine transport in Switzerland (import and transit transport, reference year 2013-2015, taking into account the launch of operations at the renovated production facility in Pratteln in October 2016)

Annex 2: Minimum requirements for tank wagons in accordance with Clause 2.2

Criteria and features which are to serve as minimum requirements that must be met by tank wagons used for importing chlorine (UN 1017) into Switzerland (see Clause 2.2). These requirements go beyond those of the RID and ATMF in part and apply in addition to the RID.

Requirement	Description	Comments
Detection of derailments	Elements for detecting derailments (e.g. derailment detector)	
TE22 extended	Energy absorption elements (crash buffer) with optimised energy intake	
TE25 combined	Buffer override protection according to TE25a or a combination of two measures for limiting damage caused by buffer overriding according to RID TE25b up to/including TE25e.	
Valves	Protective mechanism between the outer and inner valves (two-part valve with predetermined breaking point) so that, in the event that the outer top valve is torn, the inner bottom valve guarantees full leak-tightness of the wagon. Further safety-enhancing measures in addition to RID 6.8.2.2.1.	
Brakes with automatic load conversion	This prevents brakes being incorrectly set manually.	
Optimised wheelset axle	Wheelset axle with higher load capacity: install 25 t wheelsets instead of 22.5 t.	Implement measures for new wagons. Existing wagons can be retrofitted.
No ladders	Reduces the chance of the valves being opened by a third party.	The loading and unloading companies must confirm that they do not need ladders.