

# Best-practice **E**valuation for Chemical **L**ogistics **S**afety

## **BECLOSE** **Instrument**

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The development of the BECLOSE evaluation framework was carried out as part of the *International Safety Best Practices (ISBP)* project. This initiative aims to improve safety in chemical logistics by identifying, validating, and disseminating international best practices through the platform [www.bestsafetypractices.org](http://www.bestsafetypractices.org).

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## Executive Summary

The BECLOSE (Best-practice Evaluation for Chemical Logistics Safety) is a structured evaluation instrument developed by the Safety and Security Science Section of the Faculty of Technology, Policy, and Management at Delft University of Technology. It is designed to assess the quality, relevance, and applicability of guiding documents that inform chemical logistics safety practices.

The scheme supports the evaluation of three major categories of guiding documents:

**Legal Instruments** – Enforceable regulations, laws, and directives issued by governmental or regional (specifically European) bodies.

**Normative Documents** – Standards, guidelines, and recommended practices developed by standardization bodies or affiliated institutions.

**Research Documents and Tools & Techniques** – Academic research, white papers, and practical methodologies relevant to hazardous materials and chemical logistics.

BECLOSE is specifically tailored for use on the International Safety Best Practices (ISBP) platform, where it helps professionals, regulatory authorities, researchers, and technical committees identify high-quality references for policy-making, implementation, and safety improvement.

The scheme is organized around three core domains:

**Relevance** – Evaluates whether a document aligns with the intended regulatory, industrial, and operational context.

**Practicality** – Assesses usability, accessibility, and clarity for the intended users.

**Correctness** – Examines scientific or technical rigor, stakeholder involvement, and internal consistency.

Each domain consists of specific evaluation items, which are scored on a 5-point scale from 1 (Strongly Disagree) to 5 (Strongly Agree). The manual provides:

User's manual descriptions for conceptual understanding of each item,

Where to look sections to guide appraisers in locating relevant information,

How to rate criteria offering scoring instructions and examples.

BECLOSE emphasizes fairness, transparency, and methodological rigor. It includes guidance for dealing with non-applicable items and offers scoring flexibility while maintaining consistent standards.

Through its structured approach, BECLOSE ensures that documents selected for use in chemical logistics safety are not only technically sound and up-to-date but also practical, inclusive, and aligned with current legislation and stakeholder expectations.

# 1 Introduction

## 1.1 Overview

### 1.1.1 Purpose of the BECLOSE instrument

High-consequence industries, including the chemical process industries, operate within highly regulated environments designed to protect the public, environment, and workforce from the adverse effects of undesired events. These regulations establish safety requirements that organizations must adhere to in their operations.

Regulatory frameworks primarily rely on legal instruments (e.g., legislation and regulations) to define norms and expectations. However, compliance with these frameworks often necessitates the use of normative documents (e.g., standards, guidelines, best practices) to interpret and apply regulatory requirements effectively. Additionally, scientific research and industry-driven tools and techniques provide practical solutions and methodologies to address complex challenges that cannot always be fully covered by legal or normative documents.

Regardless of document type—whether a legal instrument, normative document, or research-based tool/technique—its effectiveness is inherently linked to its quality. The development of guiding documents requires rigorous methodologies and evidence-based strategies to ensure that their recommendations are reliable, applicable, and practical. However, significant variations in quality exist across different documents, making it essential to evaluate their reliability and usability systematically.

The BECLOSE (Best-practice Evaluation for Chemical Logistics Safety) scheme provides a structured approach to assessing the quality, applicability, and effectiveness of reference documents used in chemical logistics safety. By systematically evaluating guiding documents, BECLOSE aids professionals and practitioners in identifying high-quality references that support safe and effective operations within the industry.

## 1.2 Foundation of the BECLOSE

The BECLOSE is developed to evaluate guiding documents relevant to the transportation of hazardous materials, transportation of dangerous goods, and chemical logistics.

BECLOSE revolves around the European regulatory environment regarding the safety of chemical logistics and assumes it is the highest quality harmonized system. Therefore, in this section, you will find a brief overview of this legal framework to guide you in cases where the origin of documents shall be taken into account.

Additionally, the structure of this document and the indicators of the quality of various types of documents are based on existing frameworks and standards. You will also find information relevant to that here.

### 1.2.1 European regulatory framework

The European regulatory environment governing chemical logistics and the transportation of hazardous materials is built upon several core legal instruments. These define the standards, responsibilities, and risk control mechanisms for ensuring public, environmental, and occupational safety.

The three most important pieces of legislation in this context are:

- **ADR – European Agreement concerning the International Carriage of Dangerous Goods by Road**

ADR is the central legal framework governing the transnational transport of dangerous goods by road within and beyond the EU. It classifies hazardous materials, defines packaging and labeling requirements, and regulates vehicle operation and driver training.

- Administered by: United Nations Economic Commission for Europe (UNECE)
- Update Frequency: Every two years (biennial updates)
- Latest Version in Force: ADR 2025 (entered into force July 1, 2023; replaced by ADR 2025 on January 1, 2025)
- Key Focus: Road transport, labeling, packaging, vehicle equipment, driver training, and documentation of dangerous goods.

- **SEVESO III Directive – Directive 2012/18/EU**

SEVESO III governs the prevention and control of major accidents involving hazardous substances. It applies to establishments where dangerous substances are present in quantities above specified thresholds.

- Administered by: European Commission
- Came into Force: June 1, 2015 (replacing SEVESO II)
- Update Mechanism: Updated through annex amendments and corrections, especially related to substance classification in REACH and CLP.
- Key Focus: Risk management, safety reporting, land-use planning, emergency preparedness, and public information for fixed installations.

- **REACH – Regulation (EC) No 1907/2006**

REACH regulates the Registration, Evaluation, Authorisation, and Restriction of Chemicals in the EU. It ensures that chemicals used and manufactured in Europe do not pose unacceptable risks to human health or the environment.

- Administered by: European Chemicals Agency (ECHA)
- Came into Force: June 1, 2007
- Update Mechanism: Updated regularly through ECHA amendments, including changes to substance lists, authorisation requirements, and safety data requirements.
- Key Focus: Chemical substance control across supply chains, from production to use and disposal.

These legislative instruments form the core regulatory foundation for chemical logistics safety within the European Union. As such, appraisers are encouraged to consider alignment with these frameworks—particularly when evaluating a document’s publication date, jurisdiction, references to legislation, and implementation feasibility. Documents that align with these instruments are more likely to be legally relevant, current, and actionable in EU/EEA contexts.

*Note on Scope and Flexibility:*

While ADR is the most widely used and referenced legal instrument for the road transport of dangerous goods, it is important to recognize that other mode-specific regulations also apply within the European framework. These include:

- **RID** – Regulations concerning the International Carriage of Dangerous Goods by Rail
- **ADN** – European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
- **ICAO** Technical Instructions / IATA DGR – Applicable to air transport
- **IMDG Code** – International Maritime Dangerous Goods Code, applicable to sea transport

These instruments share common principles with ADR but differ in application depending on the transport mode. To maintain focus and manage the scope of this manual, only the most broadly referenced legislation (ADR, REACH, SEVESO III) is described in detail here. However, appraisers are expected to consider the appropriate mode-specific legislation when evaluating documents that apply to rail, inland waterways, air, or maritime transport of hazardous materials.

These references are included to promote inclusivity and flexibility in evaluation. Appraisers may choose to emphasize specific legislation as most appropriate to the context of the document being assessed. For instance, SEVESO III may be treated as the overarching legislative framework for chemical safety in Europe, particularly for documents addressing industrial accident prevention and general risk governance in chemical logistics.

## 1.2.2 Structure and indicators

The structure of BECLOSE, including its domain-based framework, item scoring, and guidance structure, is inspired by the AGREE II Instrument — a widely recognized tool for assessing the quality of clinical practice guidelines. AGREE II promotes transparent, structured, and evidence-based guideline development and evaluation.

BECLOSE adopts this structure by evaluating documents across three domains (Relevance, Practicality, and Correctness) and guiding the scoring process through:

- Item-specific descriptions
- Suggestions for where to find relevant information
- Guidance for assigning scores
- examples based on real-world documents

The quality indicators used to assess normative documents in BECLOSE are derived from two foundational ISO references:

1. ISO/IEC Directives, Part 2 – Principles and rules for the structure and drafting of international standards
  - This document sets out the format, structure, and style for normative standards.
  - It ensures clarity, consistency, and usability in the way standards are written and organized.
2. Recommended Practices for Standardization by National Bodies of ISO and IEC
  - This document outlines the recommended practices for national standardization, including guidance on stakeholder involvement, transparency, consensus, and implementation.
  - It emphasizes the importance of performance-based standards, open access, and alignment with user needs.

These ISO principles informed the design of BECLOSE indicators—particularly those used for normative documents. The resulting indicators were then adapted and extended to fit other types of guiding documents, such as legal instruments and research-based tools and techniques.

As such, BECLOSE provides a unified and flexible approach for evaluating document quality across multiple categories while drawing on internationally recognized guidance development frameworks.

## 1.3 Applying the BECLOSE

### 1.3.1 Which guidelines can be appraised with the BECLOSE

The BECLOSE scheme is designed to evaluate the quality of guiding documents within chemical logistics safety across the following categories:

#### 1. Legal Instruments

- This category includes legislation, laws, regulations, or any other enforceable guidance established by local, national, or regional governmental or public bodies.
- These documents define mandatory requirements for chemical logistics safety and serve as the legal foundation for industry practices.

#### 2. Normative Documents

- This includes standards, recommended practices, guidelines, and other normative frameworks developed by local, national, or international organizations, including affiliated governmental bodies.
- These documents provide interpretative and implementation guidance, helping practitioners comply with legal instruments by establishing technical requirements, best practices, and industry standards.

#### 3. Research Documents, Tools, and Techniques

- This category encompasses peer-reviewed research articles, technical reports, industry white papers, and practical tools and methodologies developed through academic research, industry-driven R&D, or collaborative expert efforts.
- These documents contribute to risk assessment, safety improvements, technological advancements, and decision-making support beyond the direct scope of legal and normative documents.

BECLOSE evaluates these documents based on structured criteria to assess their relevance, practicality, and correctness, ensuring that professionals in chemical logistics safety can identify high-quality and applicable references for their operations.

### 1.3.2 Who can use BECLOSE

The BECLOSE scheme is developed by the Safety and Security Science Section of the Faculty of Technology, Policy, and Management (TPM) at Delft University of Technology to evaluate the guidelines presented on the International Safety Best Practices Platform (ISBP). This evaluation process is conducted by the Evaluation Committee established

by the ISBP. BECLOSE serves as a structured tool for assessing the quality, applicability, and reliability of guiding documents in chemical logistics safety.

The following groups can benefit from using BECLOSE:

1. Regulatory Authorities and Policy Makers

- Government agencies and regulatory bodies responsible for developing, enforcing, or reviewing legislation and safety policies.
  - Can use BECLOSE to assess the robustness of legal instruments and ensure alignment with current best practices and scientific evidence.

2. Industry Professionals and Practitioners

- Safety officers, compliance managers, and logistics coordinators in industries handling hazardous materials and chemical transportation.
  - Can use BECLOSE to identify high-quality normative documents and research-backed methodologies that enhance safety and regulatory compliance.

3. Standardization Bodies and Technical Committees

- Organizations that develop standards, recommended practices, and normative documents for chemical logistics safety.
  - Can use BECLOSE to benchmark and improve document quality before final adoption.

4. Researchers and Academics

- Scholars and research institutions engaged in chemical process safety, hazardous materials logistics, and risk management.
  - Can use BECLOSE to evaluate the scientific rigor and practical applicability of research findings, tools, and methodologies.

5. Professional and Trade Associations

- Organizations representing logistics companies, chemical manufacturers, and industry professionals.
  - Can use BECLOSE to assess and recommend best practices to members.

6. Emergency Response and Risk Management Professionals

- First responders, crisis management teams, and risk analysts responsible for hazardous material incident prevention and mitigation.
  - Can use BECLOSE to ensure that guidance documents are clear, practical, and aligned with real-world safety needs.

BECLOSE is a versatile tool that supports evidence-based decision-making and helps users select reliable and effective documents for ensuring chemical logistics safety.

## 2 User's Manual: Instructions for using the BECLOSE

### 2.1 Preparing to use the BECLOSE

Before using the BECLOSE evaluation scheme, it is essential to ensure that appraisers are familiar with the purpose, structure, and scoring methodology of the instrument. A systematic approach to document evaluation enhances the consistency, reliability, and validity of the assessment process.

Key steps to prepare for using BECLOSE include:

1. Understanding the Scope of BECLOSE
  - BECLOSE is designed to assess the quality and applicability of legal instruments, normative documents, and research-based tools and techniques within chemical logistics safety.
  - Evaluators should be aware of which type of document they are assessing, as each category has specific evaluation criteria.
2. Becoming Familiar with the BECLOSE Domains and Items
  - The evaluation is structured into three main domains:
    1. Relevance – Examines whether the document is applicable and aligned with regulatory and industry needs.
    2. Practicality – Assesses the usability, clarity, and accessibility of the document.
    3. Correctness – Evaluates the document's scientific rigor, accuracy, and reliability.
  - Each domain consists of specific evaluation items, and appraisers should carefully review the guidance for scoring each item.
3. Reviewing the Scoring Methodology
  - BECLOSE uses a structured rating scale to ensure objective and standardized assessments.
  - Evaluators should familiarize themselves with the scoring system with the help of examples provided for each item where the rating system is applied with a brief explanation to motivate the rating.
4. Ensuring Access to the Full Document
  - Appraisers must have access to the complete document being evaluated.

- In cases where sections of the document required to rate specific items are unavailable, evaluators should note limitations in their assessment and try to provide fair ratings to the best of their capability.

#### 5. Consulting Relevant Background Information

- Evaluators may need to review relevant regulations, industry standards, or scientific literature to understand the context of the document.
- Cross-referencing with authoritative sources can help determine whether the document aligns with current best practices and approach required especially when concerned with the currency and origin of documents being evaluated.

#### 6. Engaging with Other Appraisers (if applicable)

- If multiple evaluators are involved, a calibration session may be beneficial to align interpretations of scoring criteria.
- Discussions among appraisers can help ensure consistency and reliability in the evaluation process.

By following these preparatory steps, appraisers can ensure a structured, consistent, and objective evaluation of documents using the BECLOSE scheme.

## 2.2 Structure and content of the BECLOSE and this User Manual

The BECLOSE evaluation scheme is designed to provide a systematic, structured, and objective framework for assessing the quality of guiding documents in chemical logistics safety. The instrument consists of three evaluation domains, each containing specific items that address different aspects of document quality.

### 1. BECLOSE Domains and Their Components

BECLOSE is organized into the following three main domains:

#### 2. Relevance

- Assesses the applicability and significance of the document within its intended regulatory, industrial, and operational context.

#### 3. Practicality

- Evaluates how accessible, user-friendly, and implementable the document is for practitioners and stakeholders.

#### 4. Correctness

- Focuses on the scientific rigor, accuracy, and reliability of the document's content.

Each domain consists of a set of evaluation items, each of which is scored independently based on predefined criteria.

#### 5. BECLOSE Scoring System

Each item within the BECLOSE framework is rated on a structured scale, ensuring a standardized and transparent evaluation process.

- Score of 5 (Strongly Agree – Highest Score):
  - Indicates that the document fully meets the evaluation criteria with strong supporting evidence.
- Scores of 4 to 2 (Intermediate Scores):
  - Reflect varying degrees of compliance with the criteria, where some elements are met while others require improvement.
- Score of 1 (Strongly Disagree – Lowest Score):
  - Suggests that the document fails to meet the evaluation criteria.

Each score is supported by guiding questions and rating examples to assist appraisers in making objective, evidence-based assessments.

#### 6. Additional Supporting Features

- Guiding Questions for Each Item:
  - Each evaluation item includes a guiding question to clarify the intent of the assessment. The appraisers shall rate the item based on how well the document satisfies its criteria
- Description:
  - Each evaluation item includes a description to clarify what aspect of the quality of the document is being evaluated and also provides motivation for the inclusion of the item in the evaluation whenever required.
- Where to Look Section:
  - Provide specific guidance on which sections of the document to review for relevant information or provide suggestions on resources that would assist in evaluating the item.
- How to Rate Section:
  - Offers clear scoring criteria to ensure consistency and objectivity among evaluators.
- example Evaluations:

- An example is chosen for each document type.
- Each item includes a practical example, demonstrating how the rating criteria are applied in real assessments for each item.

## 7. Final Notes on Structure and Use

The BECLOSE framework is designed to be adaptable, allowing for evaluations of a diverse range of guiding documents, including legal instruments, normative documents, and research-based tools and techniques. By following a standardized structure, BECLOSE ensures that assessments are consistent, transparent, and actionable for decision-makers in chemical logistics safety.

## 2.3 Rating scale and user's manual sections

The BECLOSE scheme employs a structured rating system to ensure a consistent, objective, and transparent evaluation of guiding documents in chemical logistics safety. Each item within the framework is scored on a 5-point scale, with guidance provided to assist appraisers in making informed assessments.

In cases where an item's quality is binary (e.g., Yes/No or Present/Absent), the rating is restricted to either 1 or 5, depending on whether the criterion is met.

The BECLOSE User Manual provides detailed guidance on rating each item, including where to locate the relevant information within a document and how to interpret the rating scale.

### 2.3.1 Rating scale

All BECLOSE items are rated on the following 5-point scale:

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

- Score of 1 (Strongly Disagree):
  - Assigned when no relevant information is present in the document.
  - If the document fails to meet the criteria entirely,
  - Used for binary evaluations when the response to the relevant question is No or Absent.
- Score of 5 (Strongly Agree):

- Assigned when all criteria are fully satisfied and the document demonstrates exceptional quality for that item.
- Used in binary evaluations when the response to the relevant question is Yes or Present.
- Scores Between 2 and 4 (Intermediate Ratings):
  - Given when the document meets some but not all of the evaluation criteria.
  - The level of compliance determines whether the document receives a score closer to 2 (minimum compliance) or 4 (near-complete compliance).
  - The “How to Rate” section for each item provides additional considerations to guide appraisers in determining appropriate scores.
  - Final scoring remains at the discretion of the appraiser, based on the overall quality and relevance of the document.

## 2.3.2 User’s manual sections for individual items

### 2.3.2.1 User’s manual description

- This section defines the underlying concept of the item in broad terms.
- It provides examples to illustrate the importance and application of the item.

### 2.3.2.2 Where to look

- Directs appraisers to common sections or chapters in the document or external sources where relevant information may be found.
- Includes a list of commonly used section names to assist in locating specific content.
- Serves as a general guideline only, as appraisers may be required to identify the relevant information elsewhere due to the wide spectrum of documents being evaluated, which prevents the development of a one-size-fits-all guidance.

### 2.3.2.3 How to rate

- Provides detailed assessment criteria and considerations specific to each item.
- Criteria → Identify explicit elements that define the operational scope of the item. The more criteria that are met, the higher the assigned score.
- Considerations → Help inform the evaluation by highlighting relevant aspects that contribute to the overall quality of the document.

Additionally:

- Given that each domain contains a limited number of items, appraisers may adjust the final domain score by up to 20% if they believe the document’s quality warrants a higher score based on factors not explicitly captured in the BECLOSE scheme.

- Legal instruments are exempt from score adjustments and shall be evaluated strictly based on the predefined BECLOSE criteria.

#### *2.3.2.4 Final notes on rating*

BECLOSE does not prescribe fixed expectations for intermediate scores (2-4), as the assessment process requires expert judgment from the appraiser. The criteria and considerations serve as guidance, but the final scoring reflects the evaluator's professional interpretation of the document's quality. This aspect becomes especially important when the appraiser believes a document shall receive a higher rating due to its quality if the instrument, due to its generality, has not evaluated the document fairly due to its narrow scope or specificity.

#### *2.3.2.5 Other considerations when applying BECLOSE*

In some cases, certain BECLOSE evaluation items may not be applicable to the specific guiding document under review. This is particularly relevant for normative documents with a narrow scope, which may not provide the full range of elements considered in a domain. However, since BECLOSE does not include a "Not Applicable" (N/A) option, appraisers must determine how to score such cases using one of the following strategies.

Regardless of the approach chosen, appraisers must apply the same strategy consistently across all documents evaluated using BECLOSE to ensure fairness and uniformity in assessments.

Strategies for Handling Non-Applicable Items: (BECLOSE suggest the 3<sup>rd</sup> strategy)

1. Assigning a Score of 1 (Strongly Disagree) – Recommended Strategy
  - The appraiser assigns a score of 1 to any item that is not represented in the guiding document but is required by BECLOSE.
  - This approach is recommended when appraisers believe that a narrow scope negatively impacts document quality and disadvantages users by limiting its applicability.
2. Assigning an Average Score Based on Other Items in the Domain
  - The appraiser assigns a score equal to the average of the other rated items within the same domain.
  - This approach raises the overall score of guiding documents with narrow scopes, making them more comparable to broader documents.
  - This strategy is suggested if the appraisers believe that a narrow scope does not inherently reduce the quality of a document, as its limitations are a natural consequence of its focused application.
3. Skipping Non-Applicable Items – Not Recommended

- The appraiser excludes the item from scoring, requiring a readjustment of the domain calculation formula to reflect the reduced number of evaluated items.
- BECLOSE discourages this approach as it can compromise fairness and consistency in comparative assessments.

### Final Considerations

- The choice of which strategy to apply is at the discretion of the appraisers, but it must be applied uniformly across all evaluated documents.
- Appraisers should carefully consider the impact of non-applicable items on the overall quality assessment to ensure fair and balanced evaluations.

## 2.4 Scoring the BECLOSE

A quality score is calculated for each of the three BECLOSE domains, namely, relevance, practicality, and correctness. The three domain scores are independent.

### 2.4.1.1 Calculating domain scores

Domain scores are calculated by summing up all the scores of the individual items in a domain and by scaling the total as a percentage of the maximum possible score for that domain.

The three types of documents considered, i.e., legal instruments, normative documents, and research and tools and techniques, have the same number of domains. At the same time, depending on the document type, the domains have different numbers of items.

| Document Type                 | Domain 1:<br>Relevance | Domain 2:<br>Practicality | Domain 3:<br>Correctness | <b>Total<br/>Items:</b> |
|-------------------------------|------------------------|---------------------------|--------------------------|-------------------------|
| Legal instrument              | 2                      | 1                         | 0                        | <b>3</b>                |
| Normative Document            | 1                      | 5                         | 3                        | <b>9</b>                |
| Research/Tools and Techniques | 1                      | 5                         | 4                        | <b>10</b>               |

### EXAMPLE:

If four appraisers give the following scores for Domain 3 (Correctness) of normative documents with 3 items:

|                            | <i>Item 1:<br/>Stakeholder<br/>involvement</i> | <i>Item 2:<br/>Coherence</i> | <i>Item 3:<br/>Cohesion</i> | <i>Total</i> |
|----------------------------|--|------------------------------|-----------------------------|--------------|
| <i>Appraiser One</i>       | 5  | 3                            | 1                           | 9            |
| <i>Appraiser Two</i>       | 4  | 4                            | 1                           | 9            |
| <i>Appraiser<br/>Three</i> | 3  | 2                            | 1                           | 6            |

|                    |    |    |   |    |
|--------------------|----|----|---|----|
| <i>Appraiser 4</i> | 2  | 5  | 1 | 8  |
| <i>Total:</i>      | 14 | 14 | 4 | 32 |

*Maximum possible Score* = 5 (*strongly agree*) × 3 (*items*) × 4(*appraisers*) = 60

*Minimum possible score* = 1(*strongly disagree*) × 3(*items*) × 4(*appraisers*) = 12

The scaled domain score is calculated as:

$$\text{Scaled domain score} = \frac{\text{Obtained score} - \text{Minimum possible score}}{\text{Maximum possible score} - \text{Minimum possible score}} \times 100$$

$$\text{Scaled domain score} = \frac{32 - 12}{60 - 12} \times 100 = \frac{20}{48} \times 100 = 41\%$$

The table below provides the maximum and minimum possible scores for various domains of different types of guiding documents considered by BECLOSE

*Table 1. The maximum and minimum possible scores of the three domains for the three document types used.*

| Document Type                   | Domain 1: Relevance    |                        | Domain 2: Practicality |                        | Domain 3: Correctness  |                        |
|---------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                                 | Minimum possible score | Maximum possible score | Minimum possible score | Maximum possible score | Minimum possible score | Maximum possible score |
| Legal Instruments               | $2 \times n_{app} *$   | $10 \times n_{app}$    | $1 \times n_{app}$     | $5 \times n_{app}$     | 0                      | 0                      |
| Normative Documents             | $1 \times n_{app}$     | $5 \times n_{app}$     | $5 \times n_{app}$     | $25 \times n_{app}$    | $3 \times n_{app}$     | $15 \times n_{app}$    |
| Tools & Techniques and Research | $1 \times n_{app}$     | $5 \times n_{app}$     | $5 \times n_{app}$     | $25 \times n_{app}$    | $4 \times n_{app}$     | $20 \times n_{app}$    |

\* Represents the number of appraisers

If the number of items is changed due to the judgment of the implementing committees, appropriate modifications to the calculations of maximum and minimum possible scores are required.

#### 2.4.1.2 Interpreting domain scores

Domain scores in BECLOSE serve as a valuable tool for identifying the strengths and limitations of a guiding document, comparing its quality against others, and selecting high-quality references for chemical logistics safety. However, since there is no empirical input from practitioners linking specific quality scores to implementation outcomes (e.g., speed of adoption, extent of adoption, or measurable safety improvements), establishing absolute quality thresholds remains a challenge.

Given this limitation, appraisers may choose to prioritize specific domains over others or set thresholds for acceptability. This manual does not follow this approach, treats all domains alike and adopts no thresholds. This is not practiced here as this should be done by expert members of the committee.

Regardless, below are two possible approaches that evaluation committees may consider when defining thresholds for document quality:

- Approaches for Setting Quality Thresholds

1. Prioritizing One Domain Over Others

- a. The evaluation committee may choose to prioritize a single domain based on its perceived importance for a given context.
- b. Quality thresholds are then set based on scores for the prioritized domain.
- c. Example: A committee may decide that high-quality documents must achieve a Domain 3 (Correctness) score >70%, considering scientific rigor to be the most critical factor.

2. Considering All Domain Scores

- a. Instead of focusing on a single domain, thresholds may be applied across all three domains.
- b. The committee can establish a universal threshold (e.g., high-quality documents must have scores above 70% in all domains).
- c. Alternatively, different thresholds can be defined for each domain separately, depending on the specific requirements of the evaluation context.

- Committee Decision-Making on Thresholds

Before beginning BECLOSE evaluations, the evaluation committee must decide on the approach to defining quality thresholds. This decision should be based on:

- The context in which the guiding document will be used.
- The relative importance of different domains and items for the intended application.
- Consensus among committee members on the most appropriate threshold strategy.

Since BECLOSE provides flexibility in defining quality thresholds, users should ensure that any adopted approach remains consistent throughout the evaluation process.

#### *2.4.1.3 Overall assessment of BECLOSE*

To provide a subjective means for evaluating the overall quality of the document over the three domains, the formula below is provided:

$$QS = \frac{w_R \times R + w_P \times P + w_C \times C}{w_R + w_P + w_C}$$

Where:

- QS is the overall assessed quality of the evaluated guiding document.
- $R$  is the score assigned to Domain 1 (relevance) of the guiding document.
- $P$  is the score assigned to Domain 2 (practicality) of the guiding document.
- $C$  is the score assigned to Domain 3 (correctness) of the guiding document.
- $w_R$  is the weight assigned to Domain 1 (relevance) of the guiding document.
- $w_P$  is the weight assigned to Domain 2 (practicality) of the guiding document.
- $w_C$  is the weight assigned to Domain 3 (correctness) of the guiding document.

Meanwhile, if the committee members reach the consensus that the three domains are equally important, the above formula is simplified to the following:

$$QS = \frac{R + P + C}{3}$$

*Important Note: in the case of legal instruments where the correctness domain is not applicable, the appraisers shall assign a value of 1 to correctness (C) in the above equation.*

## 2.5 Guidance for rating each domain

### 2.5.1 Domain 1: Relevance

The Relevance domain assesses whether the guiding document is applicable within its intended regulatory, industrial, or operational context.

This domain is important because a guiding document, regardless of its quality, must be appropriate for the intended audience and purpose. If a document is not relevant, it may lack practical value for professionals and decision-makers, leading to misinterpretation, ineffective implementation, or unnecessary complexity.

Evaluating relevance provides insight into whether a document:

- Is designed for the right geographic, industrial, or regulatory context.

A document that scores highly in this domain is well-aligned with its intended purpose, making it a valuable resource for professionals seeking guidance in chemical logistics safety.

### 2.5.1.1 Legal instruments

2.5.1.1.1 Item 1: Jurisdiction: What is the geographical and political scope of the legal instrument, and which countries or regions are obligated to comply with its provisions?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

Jurisdiction refers to the geographic and political area in which a legal instrument is enforceable. It defines the boundaries within which legislation, regulations, or laws are legally binding and must be implemented. Understanding jurisdiction is essential for determining the legal applicability and authority of regulation in the context of chemical logistics safety.

Legal instruments may apply at the national, regional, or international level. Instruments that are enforceable within the European Union (EU) or European Economic Area (EEA) are generally considered more relevant for EU-based operations, as they are directly aligned with EU legislative frameworks and enforcement mechanisms. Legal instruments originating from outside the EU/EEA may still hold relevance but require additional scrutiny to ensure compatibility with European safety regulations and practices.

#### **WHERE TO LOOK:**

To determine the jurisdiction of a legal instrument, consider examining:

1. Title or Preamble:
  - Often, the title or preamble of the document specifies the scope, such as "European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)."
2. Scope or Applicability Section:
  - This section explicitly outlines the regions or countries where the legal instrument is applicable.
3. Definitions or Annexes:

- Some documents include definitions or annexes that list the member countries or regions subject to the regulation.

#### 4. Official Publications or Websites:

- Consult official publications or the websites of governing bodies (e.g., United Nations Economic Commission for Europe) for authoritative information on jurisdiction.

### HOW TO RATE

- 5 (Strongly Agree – Highest Score):
  - The legal instrument is applicable within the European Union (EU) or European Economic Area (EEA), ensuring uniformity across member states.
- 4 (Agree):
  - The instrument is recognized and implemented by multiple European countries, even if not officially under the EU or EEA framework.
- 3 (Neutral):
  - The instrument has international applicability but lacks specific recognition within the European context.
- 2 (Disagree):
  - The instrument is applicable in non-European countries with limited or no influence on European practices.
- 1 (Strongly Disagree – Lowest Score):
  - The jurisdiction of the instrument is unclear or not specified, leading to ambiguity in its applicability.

#### EXAMPLE:

##### ADR 2023

##### Assessment of Jurisdiction:

- *Title or Preamble:*
  - *The "European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR)" indicates a European focus.*
- *Official Publications or Websites:*

- *The United Nations Economic Commission for Europe (UNECE) provides authoritative information confirming that ADR 2023 is applicable across its European member countries.*

*Since ADR 2023 is a European agreement with widespread adoption among European countries, it receives a score of 5 (Strongly Agree – Highest Score) for jurisdiction.*

2.5.1.1.2 Item 2: Substance: Does the legal instrument clearly define the materials or classes of substances it applies to, and are these relevant to hazardous materials and chemical logistics?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

This item evaluates whether the legal instrument explicitly addresses substances relevant to hazardous materials transportation and chemical logistics. For a legal instrument to be considered relevant in this domain, it must clearly define or describe the types or classes of substances it regulates. This includes, but is not limited to, chemicals, mixtures, hazardous goods, toxic materials, flammable substances, corrosives, and environmentally hazardous compounds.

A strong definition of substance scope ensures that the regulation is directly applicable to the domain of chemical logistics safety, allowing practitioners and regulatory authorities to determine whether the instrument pertains to their operational context.

A legal instrument that is vague or general in describing the substances it governs may result in uncertainty during implementation and may fail to provide targeted guidance for hazardous material transport, storage, or handling.

#### **WHERE TO LOOK:**

To determine which substances are covered, appraisers should consult the following sections of the legal instrument:

1. Scope or Applicability Section

- Often outlines whether the document covers specific classes of dangerous goods or general material categories.
2. Definitions or Terminology Section
    - Look for definitions of terms such as “dangerous goods,” “hazardous substances,” or specific classifications.
  3. Annexes, Appendices, or Technical Schedules
    - Many legal instruments (such as ADR) include detailed lists or tables of regulated substances, typically organized by UN number, class, or packing group.
  4. Cross-references to Classification Systems
    - References to external classification systems (e.g., UN Model Regulations) can also indicate substance specificity.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score):
  - The document provides a clear, detailed, and exhaustive description of the substances it regulates.
  - Includes formal classification references (e.g., UN numbers, transport classes) or substance tables.
  - The materials listed are directly relevant to hazardous materials and chemical logistics.
- 4–2 (Intermediate Scores):
  - The document mentions the types of substances it applies to, but the description is partial, vague, or broadly defined.
  - It may rely heavily on general terms (e.g., “chemicals” or “goods”) without specifying hazardous material classes.
  - Score closer to 4 if some substance categorization is present and closer to 2 if coverage is minimal.
- 1 (Strongly Disagree – Lowest Score):
  - The document does not mention or define any substances or material classes.
  - The scope is either non-specific or does not indicate any relevance to hazardous or chemical materials.

*EXAMPLE:*

*ADR 2023*

*Assessment of Substance Coverage:*

- *Scope Section:*
  - *ADR 2023 states that it applies to the international carriage of dangerous goods by road, including specific exemptions and limitations.*
- *Definitions Section:*
  - *Provides clear terminology for various classes of dangerous goods, including gases, explosives, flammable liquids, toxic substances, corrosives, etc.*
- *Annexes and tables:*
  - *Offers a comprehensive table of dangerous goods organized by UN number, class, classification code, and packing group.*
  - *This annex includes thousands of specific substances and mixtures regulated under ADR.*

*ADR 2023 provides a highly detailed and structured categorization of hazardous substances, making it directly applicable to chemical logistics and hazardous material transport. Therefore, a score of 5 (Strongly Agree – Fully Satisfies the Criteria) is given.*

### 2.5.1.2 Normative documents

2.5.1.2.1 Item 1: Area of influence: To what extent is the normative document applicable within the European Union (EU) or European Economic Area (EEA)?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

The area of influence refers to the geographical scope where a normative document is designed to be applied. In the context of safety, chemical logistics, and industrial risk management, EU/EEA-based standards are considered the most relevant and widely applicable due to the strict regulatory framework and harmonization practices across member states.

A normative document originating from the EU/EEA is likely to be aligned with major EU regulations, such as:

- SEVESO III Directive (2015 – Present) – The primary EU framework for major industrial accident prevention.
- REACH Regulation – Governs the registration, evaluation, authorization, and restriction of chemicals in the EU.
- ADR Agreement – Regulates the transportation of hazardous goods by road in Europe.

For global standards, additional scrutiny is required to determine their level of alignment with EU/EEA regulations.

#### **WHERE TO LOOK:**

To determine the geographical applicability of a normative document, appraisers should check the following sources:

1. Scope Section:
  - Most normative documents include a scope section that outlines their intended jurisdiction.
2. Foreword or Introduction:

- Some standards explicitly state their area of influence and any regional adaptations made.
  - The ISO/IEC Directives recommend clearly defining jurisdictional relevance in the introduction.
3. Referenced Regulations & Standards:
- Check which regulations or other standards are cited.
  - Documents citing EU directives and EU harmonized standards are more likely to be relevant.
4. Publishing Organization or Committee:
- Standards developed by CEN (European Committee for Standardization) or EU agencies indicate EU applicability.
  - ISO and IEC documents may have regional adaptations if adopted by national bodies.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – High EU/EEA Relevance):
  - The document originates from an EU/EEA country.
  - It is fully aligned with EU/EEA safety regulations, such as SEVESO III, REACH, or ADR.
  - References to EU directives, standards, and frameworks confirm applicability.
- 4-2 (Moderate Relevance – Intermediate Scores):
  - The document originates outside the EU/EEA but aligns with EU regulations through mutual recognition or harmonization.
  - It references EU directives or similar global standards but lacks direct endorsement from EU regulatory bodies.
- 1 (Strongly Disagree – Lowest Score – Low EU/EEA Relevance):
  - The document originates from a non-EU/EEA country with no alignment to EU regulations.
  - It follows a jurisdiction with conflicting or incompatible regulatory frameworks, requiring significant adaptation for EU use.

**EXAMPLE:***Assessment of area of influence*

*Document: Emergency Response Guidebook (ERG 2024)*

*Source: Published by the U.S. Department of Transportation (DOT) in collaboration with Transport Canada and Mexico's SCT.*

*Assessment of Area of Influence:*

- *Scope & Intended Use: The ERG is designed for North American first responders.*
- *Foreword & References:*
  - *The ERG does not specifically reference EU/EEA regulations.*
  - *It aligns with North American transportation safety regulations (e.g., U.S. Hazardous Materials Regulations (HMR) and Canada's TDG Act).*
- *Compatibility with EU Frameworks:*
  - *The guide provides general emergency response principles that are broadly applicable.*
  - *EU users may need additional interpretation or adaptation to ensure compliance with EU transport and safety frameworks.*
  - *The document mentions having been translated to languages specific to European countries, i.e., German; this signals potential adaptation or reliance on the guideline within the EU/EEA region*

*The ERG originates from a non-EU/EEA country and does not explicitly align with EU regulations. Meanwhile, it is noted that it was translated into languages specific to European Union member states. Therefore, it receives a score of 2 (Low EU/EEA Relevance).*

### 2.5.1.3 Research documents and tools and techniques

2.5.1.3.1 Item 1: Region/country of origin: How likely is the document to be applicable within the EU or the EEA?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

This item assesses the extent to which the research document or tool and technique is likely to be applicable within the European Union (EU) or European Economic Area (EEA). Given that safety regulations, chemical logistics practices, and risk management frameworks vary across jurisdictions, understanding the geographic origin of the document is essential for determining its relevance to the EU/EEA context.

A document originating from an EU/EEA country is more likely to align with regional safety standards, regulatory frameworks, and chemical logistics practices. Conversely, documents from non-EU/EEA regions may follow different standards and require additional scrutiny to assess their applicability.

#### **WHERE TO LOOK:**

The geographic origin of a research document or tool and technique can typically be determined by examining the following sources within the document:

1. Affiliation of the Authors:
  - Check the institution or company associated with the authors, as this is often listed on the title page or within the author information section.
2. Funding and Sponsorship:
  - Review the acknowledgment section to identify funding bodies. EU-based research grants (e.g., Horizon Europe, national research councils) indicate stronger EU/EEA relevance.
3. Case Study or Application Area:
  - If the document includes a case study, empirical analysis, or field research, verify the location of data collection and analysis.

## HOW TO RATE

- 5 (Strongly Agree – Highest Score):
  - The document originates from an EU/EEA country AND is aligned with EU chemical logistics safety regulations (e.g., SEVESO III Directive and REACH).
  - Case studies and data are based on EU/EEA conditions.
  - Funding sources include EU grants or national research programs within the EU/EEA.
- 4-2 (Moderate Relevance – Intermediate Scores):
  - The document originates from a non-EU/EEA country but follows EU/EEA-aligned safety frameworks (e.g., regulatory harmonization with EU directives).
  - document references EU legislation, standards, or case studies but is not conducted in the EU/EEA.
- 1 (Low Relevance – Lowest Score):
  - The document originates from a non-EU/EEA country with no alignment to EU regulations on chemical logistics safety.
  - The methodology, regulations referenced, and case studies are specific to jurisdictions with conflicting or incompatible regulatory frameworks.

### EXAMPLE:

*Assessment of region/country of origin*

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bilevel flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

- *Author Affiliation: Dipartimento di Ingegneria dell'Impresa, Università di Roma "Tor Vergata", Rome, Italy (EU).*
- *Funding Source: Italian Ministry of University and Research (EU).*
- *Application Context: The study applies its methodology to a hazardous materials transportation network in Italy (EU).*

*Since all indicators confirm strong EU relevance, this Receives 5 (Strongly Agree) as it originated from a member state of the EU.*

### 2.5.2 Domain 2: Practicality

The Practicality domain examines whether a document is accessible, understandable, and usable for its intended audience. A guiding document may be highly relevant, but if it is difficult to interpret, hard to obtain, or impractical for real-world application, its effectiveness is significantly reduced.

This domain is essential because clear and structured guidance supports effective decision-making. An overly complex document that lacks transparency or is impractical to implement may create barriers to compliance and adoption.

Evaluating practicality provides insight into:

- Whether the document is well-structured and easy to navigate.
- If its guidance is clearly articulated and actionable.
- Whether it is accessible to the appropriate stakeholders.

A document that scores highly in practicality is user-friendly, easy to implement, and supports the decision-making process without unnecessary complexity or ambiguity.

### 2.5.2.1 Legal instruments

2.5.2.1.1 Item 1: Enforcement status: Is the legal instrument currently in force, obsolete, or scheduled to come into effect in the future?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

The enforcement status of a legal instrument is the most important and only factor impacting its practicality.

Enforcement status refers to whether the legal instrument is:

- Currently in force: The regulation is legally binding and actively applied.
- yet to be enforced: The regulation has been adopted but will come into force at a future date.
- Obsolete: The regulation has been repealed, replaced, or is no longer legally binding.

Knowing the enforcement status of a legal instrument is essential to determine whether it is relevant for compliance or whether stakeholders should prepare for future legal changes.

A currently enforced law ensures immediate applicability, whereas a yet-to-be-enforced regulation allows time for preparation. Obsolete instruments should not be relied upon unless referenced in transitional provisions.

#### **WHERE TO LOOK:**

To determine the enforcement status of a legal instrument, appraisers should check:

1. Title or Cover Page:
  - Many legal instruments specify their effective date in the title (e.g., “ADR 2023 – In Force from January 1, 2023”).
2. Foreword or Introduction:

- Some regulations state whether they replace previous versions or introduce new provisions.

### 3. Effective Date Section:

- Legal instruments often include a clause specifying when they take effect.
- Look for wording like “This regulation shall enter into force on...”

### 4. Official Government or Regulatory Websites:

- If unclear in the document, checking the issuing authority’s website (e.g., UNECE, European Commission, national governments) can confirm whether the law is still in force or it has been replaced by more recent legislation.

## HOW TO RATE

- 5 (Strongly Agree – Currently Enforced):
  - The regulation is in force at the time of assessment and legally binding.
- 4-2 (Yet to be Enforced – Future Implementation):
  - The regulation has been adopted but is not yet in force.
  - The closer the enforcement date, the higher the score:
    - 4 :To be enforced soon (within a year).
    - 3 : Enforced in the near future (1-3 years).
    - 2 : Enforced in the distant future (beyond 3 years).
- 1 (Strongly Disagree – Obsolete or Repealed):
  - The regulation has been replaced, repealed, or is no longer applicable.

It is no longer legally binding or enforceable.

### EXAMPLE:

#### ADR 2023

#### Assessment of Enforcement Status:

- *Title or Cover Page:*
  - *The document is titled ADR 2023, indicating it was applicable starting January 1, 2023.*
- *Effective Date Clause:*

- *ADR 2023 was legally binding from January 1, 2023, with a six-month transition period allowing the previous version (ADR 2021) to remain valid until June 30, 2023.*
- *Transitional Provisions:*
  - *As of January 1, 2025, ADR 2023 has been replaced by ADR 2025, making ADR 2023 obsolete and no longer the governing regulation.*
- *Official Publications or Websites:*
  - *The UNECE website confirms that ADR 2025 is now in force, officially replacing ADR 2023. (at the time of developing this manual, i.e., March 2025)*

*Since ADR 2023 is no longer in force, it receives a score of 1 (Obsolete – No Longer Legally Enforced).*

### 2.5.2.2 Normative documents

2.5.2.2.1 Item 1: Fit for implementation: Does the normative document align with the latest legislation, ensuring it remains applicable and relevant within the regulatory landscape?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

Fit for implementation is a multi-faceted concept, but in the context of normative documents for hazardous materials (HAZMAT) logistics, the most critical factor is alignment—meaning the document must align with the latest regulatory frameworks.

Hazardous materials transportation and logistics are highly regulated, and key regulations—such as the ADR, SEVESO III Directive, and REACH—are frequently updated. However, while legislative updates occur regularly, not all changes necessitate immediate updates to normative documents.

Therefore, assessing the fit for implementation of a normative document requires careful consideration:

- If a document is too outdated, it may be misaligned with current safety requirements and difficult to apply in practice.
- If a document is too frequently updated, it may cause instability or unnecessary administrative burdens for industry and regulators.
- The nature of legislative changes should be considered—minor amendments do not always require an immediate revision of normative documents.

Appraisers should not rely solely on the publication date but instead evaluate the broader context in which the document was developed, ensuring it is current and aligned with major regulatory frameworks.

#### **WHERE TO LOOK:**

Because assessing currentness is not always straightforward, appraisers should consider multiple factors:

1. Official Source and Versioning:

- If a public national authority prepares the document and is the latest version available, it is likely aligned with national policy and legislation.

2. Adoption by a National Authority:

- If a private organization developed the document but has been formally adopted by a state or regulatory body, it reflects alignment with current legal frameworks.

3. Normative References Section (if available):

- If the document explicitly references the latest versions of key legislation, this is strong evidence of currentness.
- EXAMPLES of relevant legislation include:
  - SEVESO III Directive (Major industrial accident prevention).
  - REACH Regulation (Chemical management and safety).
  - ADR Agreement (HAZMAT transportation within the EU).
  - Other transport-specific EU regulations, depending on the document's focus.

4. Year of Publication:

- If the document was published after the latest version of relevant legislation came into force, it is more likely to be aligned.

5. Document Versioning:

- If the document is the latest version, it is more likely to be current.
- If it is the first version of a new standard, appraisers should verify whether it was developed in response to the latest regulatory changes.

6. Other Considerations (Appraiser's Discretion):

- If other strong indicators of alignment with current law exist, appraisers may consider them.
- This flexibility ensures that exceptional cases are not automatically rated lower due to technicalities.

## HOW TO RATE

- 5 (Strongly Agree – Highest Score – Fully Current and Aligned):

- The document is the latest version published by a national public authority, ensuring compliance with national policy and regulations.
- it is the latest version prepared by another organization but formally adopted by a national authority.
- it explicitly references the latest versions of SEVESO III, REACH, ADR, or other applicable EU regulations.
- 4-2 (Intermediate Scores – Moderately Current and Aligned):
  - The document shows multiple indicators of currentness but lacks explicit confirmation of full alignment.
  - It may be the latest version, but its references to legislation are not fully up to date.
  - It may have been developed before a recent regulatory change, making its applicability slightly uncertain.
  - Appraisers should weigh the strength of the evidence and assign a score accordingly.
- 1 (Strongly Disagree – Lowest Score – Outdated and Misaligned):
  - The document is outdated, with no references to current legislation.
  - It predates significant regulatory changes, and its content may no longer be applicable.
  - It lacks any clear alignment with SEVESO III, REACH, ADR, or equivalent regulatory frameworks.

**EXAMPLE:**

*Document: Emergency Response Guidebook (ERG 2024)*

*Source: Published by the U.S. Department of Transportation (DOT) in collaboration with Transport Canada and Mexico's SCT.*

*Assessment of being fit for implementation:*

**1. Official Source & Versioning:**

- *The ERG is an officially recognized guide that is regularly updated every four years.*
- *The 2024 edition is the latest version, ensuring it reflects the most up-to-date response guidelines.*

**2. Adoption by a National Authority:**

- *The ERG is directly issued by the U.S. Department of Transportation, confirming its alignment with U.S. HAZMAT regulations.*

3. *Year of Publication:*

- *The 2024 publication date ensures that it reflects recent regulatory changes in its jurisdiction.*

4. *Document Versioning:*

- *The ERG follows a regular update cycle and is not outdated.*

*The ERG 2024 is the most recent and aligns with the latest legislation due to being developed as a result of collaboration between governmental bodies in North America.*

2.5.2.2.2 Item 2: Recency: Is the document the most recent version available, ensuring that users are referencing the latest standards and guidelines?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

**USER'S MANUAL DESCRIPTION:**

Recency refers to whether the normative document is the latest officially released version or a newly introduced standard. In highly regulated fields such as hazardous materials (HAZMAT) logistics, using the latest version is essential to ensure that practices remain aligned with current industry knowledge, regulatory expectations, and technological advancements.

A document that is not the latest edition may still contain useful information but might lack critical updates, such as:

- Adjustments to reflect market needs.
- Refinements in terminology, methodology, or technical specifications.
- Updates to incorporate new risks, technologies, or best practices.

A new standard (first edition) is considered recent by default, as it introduces a previously unavailable framework or guideline.

## WHERE TO LOOK:

To determine whether the document is the most recent version, appraisers should:

1. Check the Document Itself:
  - Look at the cover page or title information for an edition year (e.g., "2023 Edition").
  - Review the foreword or introduction for statements indicating whether this version replaces a previous one.
  - Identify any version or revision numbers (e.g., "ISO 9001:2015").
2. Compare with the Publisher's Official Website:
  - After identifying the version from the document, visit the publisher's website (e.g., ISO, CEN, UNECE, national agencies).
  - Compare the document's version number with the latest edition available on the official website.

If a newer version exists, the document being evaluated is not the latest edition.

## HOW TO RATE

- 5 (Strongly Agree – Latest Edition Available):
  - The document's version matches the latest version listed on the publisher's website.
  - It is either a newly introduced standard (first edition) or the most up-to-date revision of an existing document.
- 1 (Strongly Disagree – Not the Latest Edition):
  - A newer version is available on the publisher's website, meaning this document is outdated.
  - The document does not represent the most current standard.

### EXAMPLE:

*Document: Emergency Response Guidebook (ERG 2024)*

*Source: Published by the U.S. Department of Transportation (DOT) in collaboration with Transport Canada and Mexico's SCT.*

*Assessment of recency:*

- *Step 1: Checking the Document:*

- *The document is explicitly titled ERG 2024, indicating it is the most recent version.*
- *The foreword states that it builds on previous editions but does not reference a newer version.*
- **Step 2: Checking the Publisher’s Website:**
  - *The ERG follows a four-year update cycle.*
  - *Checking the official U.S. Department of Transportation website confirms that ERG 2024 is the latest available edition, with the next revision expected in 2028.*

*Since ERG 2024 is the latest edition, it receives a score of 5 (Latest Edition Available).*

2.5.2.2.3 Item 3: Comprehensible language: Is the document written in a clear and accessible manner, ensuring that practitioners can easily understand and apply its contents?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER’S MANUAL DESCRIPTION:**

A comprehensible normative document ensures that its guidance is accessible, clear, and practical for its intended audience. Unnecessarily complex language, excessive technical jargon, or ambiguous wording can hinder implementation, making it difficult for practitioners to apply the document effectively.

A well-structured document should:

- Use clear, direct language that avoids excessive complexity.
- Define technical terms either within the text or in a dedicated glossary.
- Ensure that sentences are concise and logically structured.
- Avoid overuse of legal or scientific terminology unless necessary, and when used, provide proper explanations.
- Use consistent phrasing to prevent ambiguity in interpretation.

A document that is too difficult to understand may lead to:

- Misinterpretation of requirements, leading to incorrect implementation.
- Excessive reliance on specialists to interpret basic principles.
- Reduced adoption due to difficulty in comprehension.

#### **WHERE TO LOOK:**

To efficiently assess comprehensibility, appraisers should focus on:

1. Glossary or Definition Section
  - Are technical terms clearly defined for non-specialists?
  - Are terms that appear frequently explained in a consistent and accessible manner?
2. Introduction or Scope Section
  - Does the document clearly state its purpose in simple terms?
  - Are key concepts introduced in a structured and progressive way?
3. Main Text (Random Spot Check of Sections)
  - Are the sentences concise, clear, and free of excessive jargon?
  - If technical terminology is used, is it followed by an explanation or reference to a glossary?
  - Does the document use straightforward EXAMPLEs or illustrations to explain complex ideas?
4. Practical Guidance or Annexes (If Available)
  - Are practical instructions easy to follow?
  - If the document includes flowcharts, checklists, or diagrams, do they enhance clarity rather than complicate it?

#### **HOW TO RATE**

- 5 (Strongly Agree – Highest Score – Highly Comprehensible):
  - The document is clear and well-structured, with concise language.
  - It provides a glossary or explanatory notes for technical terms.
  - Complex topics are explained in an accessible way, ensuring that an average practitioner can understand them.
- 4-2 (Intermediate Scores – Some Complexity Present):

- The document is mostly comprehensible but contains some dense sections or technical jargon without adequate explanation.
- A glossary is present but does not cover all necessary terms.
- Some sections require specialized knowledge to interpret fully.
- 1 (Strongly Disagree – Lowest Score – Poor Comprehensibility):
  - The document is difficult to understand, with overly complex language and undefined technical terms.
  - No glossary or explanation of key terms is provided.
  - The language is highly specialized, making it inaccessible to practitioners without expert knowledge.

*EXAMPLE:*

*Document: Emergency Response Guidebook (ERG 2024)*

*Source: Published by the U.S. Department of Transportation (DOT) in collaboration with Transport Canada and Mexico's SCT.*

*Assessment of language comprehensibility*

- *Glossary Presence:*
  - *The ERG includes a detailed glossary that defines key terms, aiding in comprehension.*
- *Introduction and Scope:*
  - *The document clearly states its purpose and intended audience, ensuring accessibility.*
- *Main Text:*
  - *The ERG uses concise language, but some sections rely on technical classifications without extensive explanation.*
- *Practical Guidance:*
  - *The guide provides clear instructions and response actions, making it practical for emergency responders.*

*Since ERG 2024 uses structured language and provides a glossary but contains some technical classifications that may require additional interpretation, it receives a score of 4 (Mostly Comprehensible with Minor Complexity Issues).*

2.5.2.2.4 Item 4: Performance-based: Does the normative document define requirements in terms of performance outcomes rather than prescriptive specifications, allowing for flexibility in achieving compliance?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

A performance-based normative document defines requirements in terms of outcomes or objectives rather than prescribing exact methods, materials, or procedures. This approach allows flexibility, enabling users to innovate and choose the most effective solutions while still achieving compliance with safety, quality, or operational goals.

In contrast, a prescriptive document specifies the exact methodologies, materials, or equipment that must be used, which can limit innovation. It may become outdated more quickly as technology and industry practices evolve.

Why Performance-Based Standards Are Important:

- Encourages Innovation → Organizations can develop solutions that are more efficient, cost-effective, or technologically advanced while still meeting regulatory goals.
- Enhances Flexibility → Allows adaptation to different industries, regions, and technological advancements.
- Future-Proofing → Reduces the need for frequent updates as new technologies emerge.
- Improves Practicality → Organizations have more options for compliance, making implementation less burdensome.

Examples of Performance-Based vs. Prescriptive Approaches:

| Approach          | EXAMPLE Requirement   |
|-------------------|---|
| Performance-Based | "The ventilation system must maintain air quality levels below 10 ppm for hazardous gases." |
| Prescriptive      | "Ventilation systems must use Model X with a fan speed of 1500 RPM and duct material Y."    |

In the performance-based example, any ventilation system that achieves the required air quality standard is acceptable. In contrast, the prescriptive standard mandates a specific model, material, and speed—even if more effective solutions exist.

#### WHERE TO LOOK:

To determine whether a normative document is performance-based or prescriptive, appraisers should check:

1. Requirements or Main Body Sections:
  - Do requirements specify performance outcomes, or do they dictate exact methods and materials?
2. Scope and Objectives:
  - If the document emphasizes safety, efficiency, or compliance outcomes, it is more likely performance-based.
3. Technical Specifications or Annexes:
  - If detailed step-by-step instructions, material specifications, or mandatory methods are included, it leans toward prescriptive.
4. References to Regulations or Other Standards:
  - Performance-based documents often reference goals set by legislation rather than requiring specific compliance methods.
5. Testing and Compliance Criteria:
  - Are compliance measures focused on achieving a measurable result (performance-based) or following a fixed procedure (prescriptive)?

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Fully Performance-Based):
  - The document defines requirements based on measurable performance outcomes, allowing for multiple compliance methods.
  - Users can apply different technologies or approaches as long as they meet the required standards.
- 4-2 (Intermediate Scores – Mix of Performance-Based and Prescriptive):
  - Some requirements are performance-based, but the document still includes prescriptive elements.
  - It allows some flexibility but also mandates specific methods or materials in certain cases.

- 1 (Strongly Disagree – Lowest Score – Fully Prescriptive):
  - The document dictates exact methods, materials, or procedures without allowing for alternative solutions.
  - Innovation and flexibility are highly restricted.

*EXAMPLE:*

*2024 Emergency Response Guidebook (ERG)*

*Document: Emergency Response Guidebook (ERG 2024)*

*Assessment of performance-based nature of the document*

*Requirements or Main Body:*

- *The ERG provides fixed emergency response procedures based on chemical classifications and hazard levels.*
2. *Scope and Objectives:*
    - *The guide's primary focus is on immediate response actions, ensuring first responders follow specific safety measures.*
  3. *Technical Specifications or Annexes:*
    - *The ERG includes prescriptive recommendations, such as mandatory evacuation distances, PPE requirements, and firefighting methods.*
  4. *References to Regulations:*
    - *The document aligns with hazard classification systems but does not allow much flexibility in response strategies.*
  5. *Testing and Compliance Criteria:*
    - *Emergency procedures are clearly defined and standardized, leaving little room for variation.*

*The ERG is highly prescriptive, as it provides fixed procedures that must be followed in emergency situations. Therefore, it would receive a score of 1 (Fully Prescriptive – No Performance-Based Flexibility).*

*IMPORTANT NOTE: Meanwhile, as mentioned, some items may not apply to specific guidelines due to their limited scope. This is the case when evaluating ERG; emergency response guidelines are best not to leave anything to interpretation due to the urgent nature of actions that need to be taken. Therefore, here, a score of 4 or 5 as the average of other items within this domain would be a fair rating for this item.*

2.5.2.2.5 Item 5: Freely available: Can the public access the normative document without restrictions, paywalls, or special permissions?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

A freely available normative document is one that can be accessed without financial barriers or exclusive institutional access. This is crucial for ensuring widespread adoption, transparency, and ease of implementation. If a document is locked behind a paywall or requires special permissions, its usability is significantly reduced—especially for smaller organizations, independent researchers, or non-governmental entities.

Freely available documents promote:

- **Accessibility** → Allows a broad range of stakeholders (regulators, companies, researchers, emergency responders) to use it.
- **Transparency** → Ensures that standards and safety protocols are widely understood and implemented.
- **Equitable Implementation** → Reduces barriers for organizations that cannot afford costly subscriptions or membership fees.

A non-freely available document may still be valid but poses limitations on its adoption and usability.

#### **WHERE TO LOOK:**

Appraisers should check the following sources to determine whether a document is freely available:

1. **Publisher's Website:**
  - Is the full document downloadable without a login, subscription, or payment?
2. **Official Government or Regulatory Portals:**

- Many national or EU regulations and public safety standards are freely available on government websites.
3. Google Scholar & Research Repositories:
- Some organizations publish normative documents in open-access repositories.
4. Industry or Professional Associations:
- Standards from professional bodies (e.g., ISO, CEN, ASTM) often require purchase, but some may offer free summaries or publicly available versions.
5. Any Other Publicly Available Sources:
- If a document is accessible via universities, research networks, or public libraries, it may still be considered freely available.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Fully Freely Available):
  - The document can be downloaded in full for free without restrictions.
  - It is published on a government website, open-access repository, or public institution portal.
- 4 (Older Version Freely Available – One Edition Behind Latest):
  - The previous edition (i.e., the one immediately before the current version) is freely available.
  - This provides substantial insight into the document's content and usability.
- 3 (Older Version Freely Available – Multiple Editions Behind Latest):
  - A much older version is freely accessible, but the latest versions require purchase.
  - The core principles may still be applicable, but important updates could be missing.
- 2 (Partially Available – Limited Access to Introductory Sections):
  - Only select portions of the document (e.g., introduction, table of contents, executive summary) are available for free.
  - Users must purchase the full document to access all details.
- 1 (Strongly Disagree – Lowest Score – Not Freely Available):

- The document is entirely behind a paywall or requires a subscription/membership.
- There are no publicly accessible versions, summaries, or previews.

*EXAMPLE:*

*Document: Emergency Response Guidebook (ERG 2024)*

*Assessment of Availability:*

- *Publisher's Website: The ERG 2024 is fully freely available online, meaning that any user can download and use the complete document without restrictions or payment.*
- *Older Versions: Previous editions, including ERG 2020 and earlier versions, are also freely accessible, ensuring that past versions remain available for reference.*
- *Other Public Sources: The ERG is distributed by multiple government agencies, reinforcing its accessibility for a broad range of users.*

*Since the latest version is fully freely available, the ERG receives a score of 5 (Fully Freely Available).*

### 2.5.2.3 Research documents and tools and techniques

2.5.2.3.1 Item 1: Open access: Is the document freely accessible to the public through the publisher's platform or platforms such as Google Scholar?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

This item evaluates whether the document is open access, meaning it can be freely accessed without paywalls or subscription requirements. Open-access documents enhance practicality by allowing a wider audience, including researchers, policymakers, industry professionals, and the general public, to benefit from the findings without financial barriers.

A document that is not open access limits its usability, as access is restricted to those with institutional subscriptions or individual purchase options.

#### **WHERE TO LOOK:**

Appraisers should check the following sources to determine whether the document is open access:

1. Publisher's Platform – If the document is a journal article or a conference paper, check whether it is freely available on the publisher's website.
2. Publisher's Platform – If the document is a white paper or similar, check whether it is freely available on the developing organization's web page.
3. Google Scholar – Search for the document's title in [Google Scholar](#). Open-access versions may be available through repositories or institutional archives.
4. Institutional or Research Repositories – Some research institutions or authors upload their work in freely accessible archives (e.g., ResearchGate, arXiv, institutional libraries).

If none of these sources provide free access, the document is considered not open access.

## HOW TO RATE

- 5 (Strongly Agree – Highest Score):
  - The document is open access and can be freely accessed through the publisher’s platform, Google Scholar, or an institutional repository.
  - No login, subscription, or payment is required to read the full text.
- 1 (Strongly Disagree – Lowest Score):
  - The document is behind a paywall, requiring payment or institutional access.
  - The full text is not available through open-access platforms or repositories.

Note: Since open access is a binary criterion, no intermediate scores (2-4) are assigned.

### EXAMPLE:

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

### Assessment of availability:

- *Checked publisher’s website → The article is behind a paywall.*
- *Searched on Google Scholar → No freely available version found.*

*Since the document requires payment or institutional access, it receives a score of 1 (not open access).*

2.5.2.3.2 Item 2: Stakeholder involvement: Does the document demonstrate engagement with relevant stakeholders in the development of its findings, ensuring its applicability and credibility in chemical logistics safety?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

This item assesses whether the document involves relevant stakeholders in its development, which enhances its practical value, credibility, and real-world applicability. Stakeholder involvement ensures that research outcomes are aligned with industry needs, regulatory frameworks, and scientific rigor.

It is important to note that the item concerning stakeholder involvement is placed in different domains depending on the type of document being evaluated. For research documents and tools and techniques, stakeholder involvement is included under the Practicality domain. This reflects the view that engagement with relevant actors enhances the usability and applicability of research outcomes, ensuring that they address real-world needs. In contrast, for normative documents, stakeholder involvement is situated within the Correctness domain, as it contributes to a more balanced and representative development process, strengthens the credibility of the guidance, and ensures that the perspectives of those affected by the document are adequately reflected in its scope and content.

Who are the stakeholders?

Depending on the focus of the research, stakeholders may include:

- Industry representatives (e.g., chemical manufacturers, logistics companies, safety officers)
- Regulatory bodies (e.g., national safety agencies, EU policymakers, SEVESO directive stakeholders)
- Local governments (e.g. municipalities, provincial governments)
- Academic researchers and institutions ( in the case of documents such as white papers that do not go through a peer review process)

- Public sector organizations (e.g., environmental and occupational health agencies)
- Non-governmental organizations (NGOs) involved in chemical safety and environmental protection
- Practitioners or professionals who directly apply the research in the field

A research document that includes stakeholder involvement ensures that its recommendations are practically relevant, feasible to implement, and aligned with real-world challenges. A lack of stakeholder engagement may indicate limited applicability beyond theoretical research.

#### **WHERE TO LOOK:**

Appraisers should refer to the Acknowledgments section and Funding Sources to identify stakeholder engagement. Specifically, they should check:

1. Acknowledgments Section: Are individuals or organizations from industry, government, or civil society recognized for contributions?
2. Funding Sources: Does the document receive support from private sector companies, public research institutions, or regulatory bodies? Information relevant to this aspect can be identified through the citation information gathered from platforms such as Scopus or Web of Science
3. Case Studies & Data Sources:
  - If case studies are based on real-world solutions, this may indicate practical stakeholder involvement, even if not explicitly stated.
  - If anonymous sources or industry partnerships are referenced, stakeholder input may have been included implicitly.

#### **HOW TO RATE**

- 5 (Strongly Agree – Highest Score):
  - The document explicitly involves diverse stakeholders, including industry, regulatory agencies, and academia.
  - The acknowledgments and funding sections clearly list contributions from multiple stakeholder groups.
  - Case studies, interviews, or field data indicate direct engagement with professionals or industry experts.
- 4-2 (Intermediate Scores):
  - The document includes stakeholders from at least one of the key sectors (e.g., public, private, or academia), but not all three.

- Acknowledgments or funding sources suggest involvement from at least one external entity.
- The document does not explicitly mention stakeholders, but case studies based on real-world solutions or anonymous sources suggest indirect involvement. In this case, appraisers may exercise discretion and assign a score higher than 1 based on their judgment.
- 1 (Strongly Disagree – Lowest Score):
  - There is no evidence of stakeholder involvement in the acknowledgments, funding sources, or case studies.
  - The document appears to be developed in isolation, without input from industry, government, or external organizations.

*EXAMPLE:*

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bilevel flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*Assessment of stakeholder involvement:*

*The acknowledgment section reveals the involvement of:*

- *The Italian Ministry of University and Research (public funding, but not a direct stakeholder in hazardous materials transportation).*
- *University affiliation of the authors, proving public research organization involvement.*
- *Anonymous referees, which implies possible private sector and regulatory body engagement.*

*Assessment:*

*Since the document shows the involvement of a public research institution and potential but unspecified private sector/regulatory stakeholders, a score of 3-4 would be a reasonable assessment.*

2.5.2.3.3 Item 3: Applicability of methods: How easily can the methods presented in the document be applied by a wide range of practitioners, including those without specialized technical expertise?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

This item assesses the ease of application and accessibility of the methods used in the document. The more widely used, computationally simple, and practically accessible the approach is, the higher the applicability. Conversely, methods that require specialized knowledge, proprietary software, or high computational resources have limited applicability and receive a lower score.

Factors influencing applicability:

- Computational complexity – Can the method be implemented with basic tools (e.g., spreadsheets, common statistical software), or does it require advanced computing power?
- Software requirements – Is the method executable with freely available or widely used software, or does it rely on specialized, costly, or proprietary software?
- Skill level needed – Can practitioners with a general background in chemical logistics apply the method, or does it require advanced knowledge in mathematics, probability, optimization, or programming?
- Flexibility of application – Is the method adaptable to various practical settings, or does it require very specific conditions to function?

Practitioners with diverse backgrounds can easily adopt a highly applicable method, while a low applicability method is highly specialized and may only be useful for a niche group of experts.

#### **WHERE TO LOOK:**

Appraisers should examine the following sections:

1. Abstract – Does it provide an overview of the method? Is the method commonly used or highly specialized?
2. Methods Section (or equivalent) – What software, skills, or computational power does the method require?
3. Conclusions – Do the authors discuss the method's real-world usability or its applicability to different contexts?

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Highly Applicable):
  - The method is widely used and well-documented in chemical logistics and risk assessment.
  - It can be implemented with commonly available software (e.g., Excel, R, Python, GIS tools) or simple analytical techniques.
  - It requires minimal computational resources and does not demand advanced programming, mathematics, or probabilistic modeling.
  - It can be easily applied by practitioners in the field without requiring specialized training.
- 4-2 (Intermediate Scores – Moderately Applicable):
  - The method is partially accessible, meaning it requires some level of technical knowledge (e.g., basic statistical modeling, GIS, Monte Carlo simulations).
  - Some freely available tools can be used, but implementation may require customization or programming.
  - The method is practical for some practitioners, but general practitioners may struggle with it without additional training.
- 1 (Strongly Disagree – Lowest Score – Low Applicability):
  - The method requires specialized software that is not freely available (e.g., proprietary modeling platforms, commercial optimization solvers).
  - It demands advanced knowledge in mathematics, probability theory, or programming that industry professionals do not commonly possess.
  - It is highly intricate, computationally expensive, or only applicable under very specific conditions.

**EXAMPLE:**

Bianco, L., Caramia, M., & Giordani, S. (2009). A bilevel flow model for hazmat transportation network design. *Transportation Research Part C: Emerging Technologies*, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001

Assessment of applicability of methods:

The document presents:

- A bi-level optimization model requiring advanced mathematical and probabilistic modeling.
- A need for programming and implementation in specialized optimization software.
- Computational requirements that make it difficult for general practitioners to apply.

Since the method requires programming skills, mathematical modeling, and specialized software, it lacks accessibility for non-experts. Thus, it would likely receive a score of 1 or 2, indicating low applicability.

2.5.2.3.4 Item 4: Comprehensible language: Is the document written in a clear and structured manner that makes it easy to understand for a broad audience, including researchers, policymakers, and industry professionals?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

**USER'S MANUAL DESCRIPTION:**

This item evaluates whether the document is written in a clear, accessible, and structured manner that facilitates understanding by a wide range of users, including researchers, policymakers, and industry professionals.

A well-written document should:

- Use precise and unambiguous language, avoiding excessive jargon.

- Follow a logical structure with clear headings, well-defined sections, and a readable flow.
- Define technical terms and abbreviations where necessary.
- Use concise and direct explanations for complex concepts.

Documents that are overly complex, ambiguous, or poorly structured may hinder usability, reducing their practical value in guiding chemical logistics safety practices.

#### **WHERE TO LOOK:**

Appraisers should refer to the Abstract or Executive Summary, as these sections provide a condensed version of the document's content, showcasing its clarity and readability. Specifically, they should check:

1. Sentence Structure & Clarity: Does the abstract convey key messages concisely?
2. Technical Jargon: Are specialized terms defined or explained?
3. Logical Flow: Does the summary follow a coherent progression of ideas?

#### **HOW TO RATE**

- 5 (Strongly Agree – Highest Score):
  - The document is written in clear, concise, and structured language, making it easily comprehensible to a broad audience.
  - The abstract or executive summary effectively summarizes key points without excessive jargon or ambiguity.
  - Technical terms are well-defined, and the document follows a logical structure throughout.
- 4-2 (Intermediate Scores):
  - The document is generally clear, but some sections contain overly technical language that may require additional effort to understand.
  - The abstract/executive summary presents key information but may lack clarity or conciseness in some areas.
  - Some technical terms are not defined, but the document remains understandable for specialists in the field.
- 1 (Strongly Disagree – Lowest Score):
  - The document is difficult to understand due to excessive jargon, poor organization, or unclear explanations.

- The abstract/executive summary fails to communicate key messages clearly or is overly complex.
- The writing lacks coherence, making it difficult for the reader to extract useful insights.

*EXAMPLE:*

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bilevel flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*In this work we consider the following hazmat transportation network design problem. A given set of hazmat shipments has to be shipped over a road transportation network in order to transport a given amount of hazardous materials from specific origin points to specific destination points, and we assume there are regional and local government authorities that want to regulate the hazmat transportations by imposing restrictions on the amount of hazmat traffic over the network links. In particular, the regional authority aims to minimize the total transport risk induced over the entire region in which the transportation network is embedded, while local authorities want the risk over their local jurisdictions to be the lowest possible, forcing the regional authority to assure also risk equity. We provide a linear bilevel programming formulation for this hazmat transportation network design problem that takes into account both total risk minimization and risk equity. We transform the bilevel model into a single-level mixed integer linear program by replacing the second level (follower) problem by its KKT conditions and by linearizing the complementary constraints, and then we solve the MIP problem with a commercial optimization solver. The optimal solution may not be stable, and we provide an approach for testing its stability and for evaluating the range of its solution values when it is not stable. Moreover, since the bilevel model is difficult to be solved optimally and its optimal solution may not be stable, we provide a heuristic algorithm for the bilevel model able to always find a stable solution. The proposed bilevel model and heuristic algorithm are experimented on real scenarios of an Italian regional network. © 2008 Elsevier Ltd. All rights reserved.*

*Assessment of language comprehensibility*

- *The abstract is written in clear, concise, and structured language, making it easily comprehensible to a broad audience.*
- *The abstract or executive summary effectively summarizes key points without excessive jargon or ambiguity.*

- *Technical terms are not so well-defined when it comes to the methodology, yet the document follows a logical structure throughout.*

*All indicators confirm a well-written document with minor ambiguity concerned with the methodology. Considering the length of the abstract requires to be within a specific word count, it is logical to assume the article itself would provide more context in this regard. Therefore, a score of 5 (strongly agree) or at least 4 will be given for this item.*

2.5.2.3.5 Item 5: Adaptability to a range of problems: Does the document provide findings, methods, or frameworks that can be applied to a broad range of hazardous materials transportation and logistics challenges, or is it highly specific to a particular context?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

This item evaluates how broadly applicable the document is within hazardous materials (hazmat) transportation, logistics, and safety. A document with high adaptability can be applied to various chemicals, and risk aspects, whereas a highly specific document may focus narrowly on one substance, transportation setting, or methodological concern.

Factors influencing adaptability:

- Breadth of chemical scope – Does the study apply to hazardous materials in general, or does it focus on a single chemical or category (e.g., liquefied natural gas, ammonia transport)?
- Scope of risk aspects – Does the research consider a wide range of risks (e.g., environmental, managerial, safety, security), or does it only focus on a single dimension (e.g., uncertainty analysis, security)?
- Generality of methods – Does the study provide a general framework or methodology applicable across different settings, or is it tailored to a single model, scenario, or dataset?

A highly adaptable document is more useful for diverse stakeholders and practical applications, while a narrowly focused document may have limited relevance beyond its specific case.

#### WHERE TO LOOK:

Appraisers should refer to the following sections to determine adaptability:

1. Abstract – Does it indicate broad applicability, or does it mention a very specific focus?
2. Conclusions – Do the authors suggest their findings are applicable to multiple scenarios, or are they only valid under particular conditions?
3. Methods (or equivalent section) – Does the methodology allow for generalization, or is it constrained to specific assumptions and parameters?

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Highly Adaptable):
  - The document applies to hazardous materials in general without being restricted to a specific chemical or industry.
  - The study considers a broad spectrum of risks, including environmental, operational, managerial, and other concerns relevant to safety.
  - The methods used can be applied in various contexts in the specific mode of transportation mentioned.
- 4-2 (Intermediate Scores – Moderately Adaptable):
  - The document applies to a category of hazardous materials (e.g., flammable gases, corrosive liquids) rather than all hazardous materials.
  - It covers multiple aspects of risk but may have gaps in certain areas (e.g., focuses on safety and environmental risks but omits security concerns).
  - The methodology allows for some level of generalization but requires adaptation to be applied outside the study's specific context.
- 1 (Strongly Disagree – Lowest Score – Highly Specific):
  - The document is restricted to a single chemical (e.g., only concerns ammonia or lithium batteries).
  - It only applies to one aspect of logistics (e.g., tunnels, or designing emergency response networks).
  - The research focuses on a narrow aspect of risk (e.g., only assesses uncertainties without considering broader risk management).
  - The study relies on a single, rigid methodology that cannot be easily adapted to other settings.

*EXAMPLE:*

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*Assessment of adaptability to a range of problems*

*The document exhibits the following characteristics:*

- *Hazmat Scope: The study applies to hazardous materials in general.*
- *Risk Coverage: The study only considers network design.*
- *Methodological Adaptability: The study employs a specific optimization method, which may not be broadly applicable outside network design.*

*Given its focus on a narrow risk perspective (network design), and a specific methodology, this document would likely receive a score of 3 or 2, indicating low adaptability.*

### 2.5.3 Domain 3: Correctness

The Correctness domain evaluates the accuracy, reliability, and scientific or technical rigor of a guiding document. Even if a document is relevant and practical, it must also be factually sound, methodologically robust, and free of errors or inconsistencies.

This domain is critical because incorrect or outdated information can pose serious risks. A guiding document that lacks a strong foundation in evidence, best practices, or regulatory consistency may lead to misinformed decisions, safety hazards, or legal non-compliance.

Evaluating correctness provides insight into:

- Whether the document is technically and scientifically sound.
- Whether it maintains consistency and reliability across different contexts.

A document that scores highly in correctness is trustworthy, methodologically sound, and aligned with established principles and standards.

### 2.5.3.1 *Legal instruments*

Considering that abiding by legal instruments becomes obligatory upon their coming into force, correctness does not apply to this type of document.

### 2.5.3.2 Normative documents

2.5.3.2.1 Item 1: Stakeholder involvement: Were relevant stakeholders involved in the development of the normative document, ensuring that diverse perspectives and industry needs were considered?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### USER'S MANUAL DESCRIPTION:

Stakeholder involvement refers to the extent to which relevant parties—such as regulatory authorities, industry representatives, scientific experts, and public interest groups—contributed to the development of a normative document. Broad participation helps ensure that the document is practical, well-informed, and widely accepted by those expected to implement it.

A high level of stakeholder involvement results in:

- Regulatory Alignment → Ensures the document reflects legal and policy expectations.
- Industry Feasibility → Incorporates perspectives from companies and professional organizations, making implementation realistic and achievable.
- Scientific Rigor → Draws upon expert knowledge to ensure technical accuracy.
- Public & Environmental Considerations → Addresses societal, worker, and environmental concerns.

A lack of stakeholder involvement may lead to:

- Regulatory misalignment, making the document difficult to enforce.
- Implementation challenges, as industry constraints are not considered.
- Lack of trust or acceptance, particularly if key affected groups were excluded.

However, not all stakeholder groups are always necessary for every normative document. If a document is highly technical or practical in nature, scientific or public input may be less critical than industry and regulatory involvement.

EXAMPLES of Stakeholders in Normative Document Development:

- Regulatory Agencies (e.g., European Commission, National Safety Authorities)
- Industry Organizations (e.g., Chemical Transport & Logistics Associations)
- Scientific & Technical Experts (e.g., Research Institutes, Universities)
- Public & Environmental Interest Groups (e.g., NGOs, Worker Unions)

#### WHERE TO LOOK:

To determine whether stakeholders were actively involved, appraisers should check:

1. Foreword or Introduction:
  - Many documents acknowledge contributing organizations in the introduction.
2. Normative References Section:
  - Some normative documents cite contributions from various stakeholder groups.
3. Annexes or Development History:
  - Some documents include lists of consulted experts, industry representatives, or public consultations.
4. Acknowledgment Section (If Available):
  - National and international standards sometimes mention contributing institutions.
5. Publishing Organization's Background:
  - Was the document produced by a single entity or through a multi-stakeholder process?
  - Public organizations (e.g., CEN, ISO, UNECE) typically involve broad stakeholder engagement.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Broad & Inclusive Stakeholder Involvement):
  - The document explicitly acknowledges contributions from regulators, industry, scientists, and public stakeholders.
  - It was developed through a recognized multi-stakeholder process, ensuring balanced input.
  - If a specific stakeholder group is missing, but their presence is not necessary due to the nature of the document, a score of 5 may still be given at the discretion of the appraiser.

- 4-2 (Intermediate Scores – Partial Stakeholder Involvement):
  - The document shows signs of involvement from some but not all major stakeholder groups.
  - For EXAMPLE, industry and regulators contributed, but scientific or public input was missing.
  - If the document references anonymous sources or case studies based on real-world solutions, appraisers may exercise discretion in awarding a score above 1.
- 1 (Strongly Disagree – Lowest Score – No Clear Stakeholder Involvement):
  - The document does not indicate any external contributions beyond the issuing organization.
  - It appears to have been developed without consultation from key affected groups.

**EXAMPLE:**

*Document: Emergency Response Guidebook (ERG 2024)*

*Assessment of Stakeholder Involvement:*

- *Foreword or Introduction: The ERG states that it was developed by the U.S. Department of Transportation (DOT) in collaboration with Transport Canada and Mexico's Secretariat of Infrastructure, Communications and Transport (SICT).*
- *Industry & Expert Contributions: The ERG mentions that it was developed with assistance from interested parties in government and industry. However, it does not specify which industry representatives were involved or the extent of their contributions.*
- *Scientific or Public Involvement: The ERG does not explicitly list contributions from the scientific community or public stakeholder groups. However, given its practical focus, scientific input may not have been necessary for this document.*
- *International Reach: The ERG has been translated into multiple languages, and countries are encouraged to adopt it, suggesting some level of global stakeholder engagement.*

*Since the ERG involves multiple government agencies and mentions industry but lacks specific details on the extent of industry involvement or scientific contributions, it receives a score of 3 or 4 (Moderate to Strong Stakeholder Involvement). If it had explicitly detailed industry contributions, it could have received a 5 at the discretion of the*

*appraiser, even though the scientific contribution is missing due to the practical nature of the document.*

2.5.3.2.2 Item 2: Coherence: Does the document use consistent terminology, definitions, and structured language throughout, avoiding contradictions and inconsistencies?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

Coherent language refers to the use of clear, consistent, and standardized terminology throughout a normative document. Ensuring homogeneity in language and definitions is essential for clarity, ease of implementation, and regulatory alignment.

A well-structured document should:

- Use consistent terminology and definitions, ideally consolidated in a glossary or dedicated section.
- Maintain alignment with previous versions or related standards, ensuring continuity in definitions.
- Clearly state modifications or updates to terminology compared to earlier versions.
- Avoid contradictory terms or conflicting definitions across sections.

Normative documents that adhere to structured terminology enhance their usability across jurisdictions and industries, reducing misinterpretation and implementation barriers.

#### **WHERE TO LOOK**

To assess the coherence of language in a normative document, appraisers should check:

1. Glossary / Terms & Definitions Section
  - Documents often include a glossary or terminology section defining key terms.

- The presence of systematically defined terms indicates coherence.
- 2. Revision or Change Log (if applicable)
  - Some documents explicitly state how terminology has evolved from previous editions.
  - This helps ensure continuity and minimizes confusion.
- 3. Terminology Standardization References
  - If a document references ISO/IEC or other established definitions, it demonstrates consistency with broader regulatory frameworks.
- 4. Any Other Clearly Defined Section Listing Terms
  - In some cases, documents may not have a dedicated glossary but instead embed definitions in the introductory or annex sections.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score):
  - The document contains a clearly structured glossary or equivalent section.
  - It maintains consistency in terminology and aligns with established regulatory or industry-standard definitions.
  - Changes in terminology are explicitly documented and justified.
- 4-2 (Intermediate Scores – Some Inconsistencies Present):
  - The document contains a glossary, but it lacks comprehensiveness, or some inconsistencies in terminology exist.
  - Key terms are mostly defined, but minor contradictions or unclear phrasing are present.
  - Updates to terminology are not explicitly documented but can be inferred.
- 1 (Strongly Disagree – Lowest Score):
  - The document lacks a glossary or equivalent section.
  - Key terms are not systematically defined, leading to potential misinterpretation.
  - Terminology varies across sections, causing contradictions or inconsistencies.

**EXAMPLE:**

Document: *Emergency Response Guidebook (ERG 2024)*

Assessment of coherence:

- **Glossary Presence:**
  - *ERG 2024 includes a comprehensive glossary spanning multiple pages, systematically defining key terms such as "Skin Corrosion," "Small Spill," "Thermal Runaway," "Toxic Inhalation Hazard," and more.*
  - *Terms are consistently referenced across different sections.*
- **Terminology Updates & Alignment:**
  - *While no explicit "terminology revision" section is present, the glossary covers industry-standard terms and aligns with hazardous materials regulations.*
  - *The definitions provided are consistent with North American regulatory language, supporting coherence.*

*ERG 2024 scores a 5 (Strongly Agree) due to its structured glossary and well-defined terminology.*

2.5.3.2.3 Item 3: Cohesion: Does the document maintain structural and conceptual cohesion with previous versions, ensuring continuity and ease of transition for users?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

**USER'S MANUAL DESCRIPTION:**

Cohesion in normative documents refers to the degree to which updates maintain alignment with previous versions, ensuring that practitioners familiar with earlier editions can seamlessly transition to the latest version without unnecessary confusion or contradictions.

A well-structured update should:

- Maintain core principles while integrating necessary updates.
- Clearly indicate any major changes in structure, terminology, or requirements.
- Ensure that new content does not contradict previous guidelines unless explicitly justified.
- Provide revision notes or change logs to guide users on what has been updated.

A document that lacks cohesion may introduce unexplained changes, inconsistencies with prior versions, or structural shifts that make adoption more difficult.

#### **WHERE TO LOOK:**

To efficiently evaluate cohesion with previous versions, appraisers should check:

1. Preface or Introduction Section
  - Many documents include a statement on continuity from previous versions.
2. Revision or Change Log (If Available)
  - Some normative documents provide an explicit list of modifications.
3. Appendices or Annexes (If Used for Updates)
  - Some standards include tables comparing old and new sections.
4. Document Structure Comparison (If Previous Version is Accessible)

If previous versions are available, a quick comparison of structure and terminology can highlight major shifts.

#### **HOW TO RATE**

- 5 (Strongly Agree – Highest Score):
  - The document explicitly acknowledges its relationship with past versions.
  - Key structural and conceptual elements remain intact, with updates being well-integrated.
  - A change log or revision history is included, making transitions easy for users.
- 4-2 (Intermediate Scores – Some Cohesion, Minor Disruptions):
  - Some terminology or structural changes are not well-documented, requiring extra effort to interpret.
  - There are some unexplained differences, but the overall framework remains recognizable.

- The document mostly aligns with previous editions, but lacks a clear update summary.
- 1 (Strongly Disagree – Lowest Score):
  - The document introduces major changes with no explanation or acknowledgment of past versions.
  - Key definitions or structures have been altered in a way that could create confusion.
  - There is no reference to previous versions, making it difficult to assess continuity.

*EXAMPLE:*

*Document: Emergency Response Guidebook (ERG 2024)*

*Assessment of cohesion:*

- *Preface or Introduction Section: The ERG explicitly states that it is based on previous editions developed by Transport Canada, the U.S. DOT, and Mexico's SICT.*
- *Revision or Change Log: The ERG does not provide a dedicated change log but follows the same structural format as prior versions.*
- *Structural Continuity: The overall structure, terminology, and classification system remain consistent with past editions, ensuring that users familiar with older versions can seamlessly transition to previous editions.*

*Since the ERG maintains clear alignment with past versions but does not provide an explicit change log, it receives a score of 4 (Strong Cohesion with Minor Gaps in Documented Updates).*

### 2.5.3.3 Research documents and tools and techniques

2.5.3.3.1 Item 1: Date of publication: How recent is the publication, and does it align with current regulatory frameworks, particularly the SEVESO Directive, which governs major industrial accident prevention in Europe?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### USER'S MANUAL DESCRIPTION:

The date of publication is critical in assessing the relevance and applicability of scientific research, particularly in fields related to risk and safety in hazardous materials (HAZMAT) logistics. Over time, scientific advancements, regulatory changes, and industry best practices evolve, potentially making older research outdated or misaligned with current standards.

In engineering, particularly safety and risk management, research must align with regulatory frameworks that shape industry requirements. In Europe, the SEVESO Directive is the most significant disaster prevention regulation, directly influencing risk management, safety protocols, and industrial compliance.

- SEVESO III Directive (2015–Present): Introduced stricter hazard classifications, improved public transparency, and enhanced risk assessment protocols. Research conducted after 2015 is expected to align with these latest standards.
- SEVESO II Directive (1996–2015): Established fundamental risk management principles and industrial safety measures, but some aspects have been superseded by SEVESO III.
- Pre-SEVESO II (Before 1996): Research from this period may lack alignment with modern safety regulations and is likely outdated in terms of best practices and legal requirements.

For this reason, the date of publication is rated based on its alignment with these major regulatory milestones in industrial safety.

Referencing SEVESO here is a suggestion. Meanwhile, it was chosen due to its rather low frequency of being updated. The appraisers could exchange it with other relevant

legislation while being mindful that a higher update frequency, such as it is in the case of ADR (every two years), might cause difficulties.

#### WHERE TO LOOK:

To determine the publication date, appraisers should check:

1. publication date.
2. Scopus/Web of Science – These databases offer structured metadata, including the publication year.
3. Google Scholar – [Google Scholar](#) provides citation details, including the year of publication.
4. Publisher’s Website – The journal or conference proceedings should list the

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Most Recent & Relevant):
  - Published in 2015 or later (aligned with SEVESO III).
  - Research is expected to fully comply with the latest risk management and safety regulations.
- 4-2 (Intermediate Scores – Moderately Recent & Partially Relevant):
  - Published between 1996 and 2015 (aligned with SEVESO II but may lack SEVESO III updates).
  - Research is still relevant but may require adjustments to meet current regulatory standards.
  - Scores should be assigned in equal intervals based on the proximity to 2015, with more recent papers receiving higher scores.
- 1 (Strongly Disagree – Lowest Score – Outdated & Less Relevant):
  - Published before 1996 (Pre-SEVESO II).
  - Research is likely outdated in methodology, regulatory alignment, or industry applicability.

#### EXAMPLE:

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*Assessment of Publication Date:*

- *Publication Year: 2009*
- *Comparison to Regulatory Framework:*
  - *SEVESO III (2015–Present): Not aligned*
  - *SEVESO II (1996–2015): Aligned*
  - *Pre-SEVESO II (Before 1996): Not applicable*

*Final Score:*

*Since this document falls within the SEVESO II period (1996–2015), it could suggest some aspects do not reflect some requirements of most recent legislation, such as SEVESO III updates. Meanwhile, it is not too outdated, so it would receive an intermediate score (likely a 3 or 4).*

2.5.3.3.2 Item 2: Citation count: How frequently has the research document been cited in peer-reviewed journals within the safety and engineering fields?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

Citation counts serve as a proxy for the influence and recognition of a research document within its academic community. A higher number of citations often indicates that the work has been acknowledged and utilized by other researchers, reflecting its relevance and impact. However, it's essential to note that while citation counts can signal quality, they are not definitive measures, as factors like publication age, field size, and research trends can influence them.

#### **WHERE TO LOOK:**

To determine the citation count of a document, appraisers should consult:

1. Google Scholar: A freely accessible platform that provides comprehensive citation data across various disciplines.
2. Scopus: A subscription-based abstract and citation database covering a wide range of journals.

3. Web of Science: Another subscription-based platform offering extensive citation reports and analytics.

Among these, Google Scholar is noted for its inclusivity and free access, making it a valuable resource for citation information.

#### HOW TO RATE

Citation counts should be evaluated relative to benchmarks within the safety and engineering fields. The following rating scale is proposed:

- 5 (Strongly Agree – Highest Score):
  - The document's citation count is above the 75th percentile (45 citations).
  - It is widely referenced, indicating strong influence and relevance in the field.
- 4-2 (Intermediate Scores):
  - The document's citation count falls between the 25th and 75th percentiles (9 and 45 citations, respectively).
  - Higher scores within this range correspond to citation counts closer to the 75th percentile, while lower scores align with counts nearer the 25th percentile.
- 1 (Strongly Disagree – Lowest Score):
  - The document's citation count is below the 25th percentile for the field (lower than 9 citations).

Note: The suggested citation ranges are based on an analysis of 510 journal articles and conference papers identified during the ISBP project's literature review. This literature search focused on safety and risk management in HAZMAT logistics and was conducted without geographic restrictions. However, only publications with at least five citations were included, which inherently introduces a bias toward highly cited papers.

Appraisers may adjust these ranges at their discretion but should apply them consistently across all evaluations of this document type to ensure fairness and comparability.

#### EXAMPLE:

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*Assessment of citation count:*

- *Citation Count: 297 (based on Google Scholar).*
- *Comparison to Field Percentiles:*
  - *More than 45 citations*

*Since the article has 297 citations, which is above the 75th percentile, it would receive a score of 5 (high impact).*

2.5.3.3.3 Item 3: Peer review process: Has the document undergone a structured peer-review process to ensure its quality, accuracy, and reliability?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

#### **USER'S MANUAL DESCRIPTION:**

Peer review is a critical quality control mechanism in academic and technical publishing. It ensures that research is evaluated by experts, helping to validate methodologies, findings, and interpretations. The level of scrutiny varies depending on the type of publication:

- **Journal Articles (Highest Rigor – Fully Peer-Reviewed)**
  - Undergo rigorous evaluation by independent experts before publication.
  - Typically double-blind or single-blind review, ensuring quality and credibility.
- **Conference Papers (Moderate Rigor – Some Review)**
  - Reviewed, but often with less stringent criteria than journal articles.
  - Some conferences have highly competitive peer review, while others focus on presentation over validation.
- **Books (Editorial Review – Lower Rigor than Journals)**
  - Reviewed by editors or subject-matter experts but not always formally peer-reviewed.

- If based on peer-reviewed work, credibility is higher; otherwise, it ranks lower than journal/conference papers.
- White Papers & Non-Peer-Reviewed Reports (Lowest Rigor – No Review)
  - Often produced by industry, governmental organizations, or research institutes.
  - May contain valuable insights, but lack independent expert validation.
  - More susceptible to bias, conflicts of interest, and methodological gaps.

Since peer review strengthens research credibility, the rating reflects the extent of scrutiny applied before publication.

#### WHERE TO LOOK:

Appraisers should identify the type of research document by checking:

1. Publisher's Website or Journal Database –
  - Is it published in a peer-reviewed journal?
  - Check Google Scholar, Scopus, or Web of Science for journal indexing.
2. Conference Proceedings –
  - Look at the conference name and publisher (e.g., IEEE, ACM, Springer, Elsevier).
  - Some conferences note their review process in the introduction or author guidelines.
3. Books & Reports –
  - Academic books from university presses or reputable publishers may be based on peer-reviewed research.
  - Industry white papers are usually available via company or government websites but are not peer-reviewed.

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Fully Peer-Reviewed):
  - The document is a peer-reviewed journal article, ensuring the highest level of scrutiny.
  - Published in recognized journals with an established peer-review process.
- 4-2 (Intermediate Scores – Partially Peer-Reviewed):
  - Conference Papers – Reviewed, but less rigorously than journal articles.

- Books – If based on peer-reviewed research, it can rank similar to conference papers; if not, it should be rated lower.
- Score variation depends on the level of review in conferences or books.
- 1 (Strongly Disagree – Lowest Score – Not Peer-Reviewed):
  - White Papers, Industry Reports, Non-Peer-Reviewed Research Findings.
  - Lacks formal academic review, making it less reliable as a primary research source.

*EXAMPLE:*

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

*Assessment of Peer Review:*

- *Published in a peer-reviewed journal (Transportation Research Part C).*
- *Indexed in Scopus and Web of Science, confirming rigorous peer review.*

*Final Score: 5 (Highest – Fully Peer-Reviewed).*

2.5.3.3.4 Item 4: Reproducibility: Can the findings or methods presented in the research document be independently reproduced based on the information and data provided?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

|           |
|-----------|
| Comments: |
|-----------|

#### **USER'S MANUAL DESCRIPTION:**

This item assesses whether the document provides sufficient details on methodology, data sources, and assumptions to allow other researchers or practitioners to replicate or verify its findings. A reproducible study enhances scientific rigor, credibility, and the ability to build upon existing research.

Key aspects of reproducibility include:

- Availability of raw data – Are datasets openly provided, or are there clear instructions on how to access them?
- Transparency of methodology – Are the methods, models, and algorithms sufficiently described for implementation?
- Assumptions and parameters – Are all assumptions, model parameters, and conditions explicitly stated?
- Code or computational tools – If programming or simulations are involved, is the source code or computational approach documented?

A research document that lacks transparency in methodology, datasets, or assumptions reduces its reproducibility, making independent verification difficult.

#### **WHERE TO LOOK:**

Appraisers should examine the following sections:

1. Methods Section – Are the methodology, assumptions, and models clearly detailed?
2. Data Availability or Appendix – Is data openly shared, or does the document specify how to access it?

3. Supplementary Materials (if applicable) – Are computational tools, algorithms, or codes provided?
4. Abstract and Conclusions – Do they indicate whether the study’s findings are verifiable or if limitations exist regarding data availability?

#### HOW TO RATE

- 5 (Strongly Agree – Highest Score – Fully Reproducible):
  - The document provides open access to all necessary data, either in the paper or through a public repository.
  - The methods are fully described, allowing replication without additional clarification.
  - If computational tools are used, source code or a detailed explanation of implementation is available.
- 4-2 (Intermediate Scores – Partially Reproducible):
  - The document describes methods well, but data is not openly available, making full replication difficult.
  - Some assumptions or computational details are missing, requiring additional interpretation.
  - Reproduction may require specialized software or data that is available upon request, but access is not guaranteed.
- 1 (Strongly Disagree – Lowest Score – Not Reproducible):
  - The document does not provide access to data and lacks detailed methodological transparency.
  - Methods are not sufficiently explained, making replication difficult or impossible.
  - Proprietary tools or undisclosed assumptions prevent independent verification of results.

#### EXAMPLE:

*Bianco, L., Caramia, M., & Giordani, S. (2009). A bi-level flow model for hazmat transportation network design. Transportation Research Part C: Emerging Technologies, 17(2), 175-196. DOI: 10.1016/j.trc.2008.10.001*

#### *Assessment of reproducibility:*

- *Data availability: The study does not provide raw data, limiting full reproducibility.*

- *Methodology transparency: The methodology, including bilevel optimization modeling, is clearly explained but requires specialized mathematical and computational expertise.*
- *Computational tools: The study uses commercial optimization software, which is not openly available and requires programming skills for replication.*

*Since the methodology is well-documented, but data is unavailable and specialized software is needed, the study is partially reproducible and would likely receive a score of 2 or 3.*

### 3 BECLOSE Instrument Evaluation Forms

Appraisers shall individually complete the evaluation forms for each document type, assessing each item within the relevant domains. The results of individual assessments shall then be processed using the following steps:

1. Aggregating Domain Scores
  - The individual item scores within each domain shall be combined and processed according to the methodology outlined in Section 2.4.1.1 (Calculating Domain Scores).
2. Assessing the Overall Quality of the Document
  - The domain scores will then be used to determine the document's overall quality, following the guidance provided in Section 2.4.1.3 and using a threshold strategy selected from Section 2.4.1.2 (Interpreting Domain Scores).
3. Recording the Final Evaluation
  - The final results of the assessment shall be documented in the evaluation forms provided for each document type under the section Overall Assessment.

This structured process ensures that the evaluation remains consistent, transparent, and reproducible, allowing appraisers to derive objective and meaningful insights from the BECLOSE assessment.

### 3.1 Legal Instruments Evaluation Form

For each question, please choose the response that best characterizes the item being assessed:

#### 3.1.1 Domain 1: Relevance

Item 1: Jurisdiction: What is the geographical and political scope of the legal instrument, and which countries or regions are obligated to comply with its provisions?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 2: Substance: Does the legal instrument clearly define the materials or classes of substances it applies to, and are these relevant to hazardous materials and chemical logistics?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.1.2 Domain 2: Practicality

Item 1: Enforcement status: Is the legal instrument currently in force, obsolete, or scheduled to come into effect in the future?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.1.3 Domain 3: Correctness

Does not apply to this document type.

In the overall assessment, the appraisers shall assign a score of one to this domain for this type of document.

## 3.1.4 Overall assessment

|   |   |   |   |                                  |
|---|---|---|---|----------------------------------|
| 1. Calculate the overall quality of this document:  |   |   |   |                                  |
| 1<br>Lowes possible<br>quality  | 2 | 3 | 4 | 5<br>Highest Possible<br>Quality |
| 2. I would recommend this guideline for use.  |   |   |   |                                  |
| <input type="checkbox"/> Yes  |   |   |   |                                  |
| <input type="checkbox"/> Yes, but with care   |   |   |   |                                  |
| <input type="checkbox"/> No   |   |   |   |                                  |
| Notes in support of your evaluation, <b>especially if you have chosen the option yes w/ care:</b> |   |   |   |                                  |

NOTES:

## 3.2 Normative Documents Evaluation Form

For each question, please choose the response that best characterizes the item being assessed:

### 3.2.1 Domain 1: Relevance

Item 1: Area of influence: To what extent is the normative document applicable within the European Union (EU) or European Economic Area (EEA)?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.2.2 Domain 2: Practicality

Item 1: Fit for implementation: Does the normative document align with the latest legislation, ensuring it remains applicable and relevant within the regulatory landscape?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 2: Recency: Is the document the most recent version available, ensuring that users are referencing the latest standards and guidelines?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 3: Comprehensible language: Is the document written in a clear and accessible manner, ensuring that practitioners can easily understand and apply its contents?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 4: Performance-based: Does the normative document define requirements in terms of performance outcomes rather than prescriptive specifications, allowing for flexibility in achieving compliance?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 5: Freely available: Can the public access the normative document without restrictions, paywalls, or special permissions?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.2.3 Domain 3: Correctness

Item 1: Stakeholder involvement: Were relevant stakeholders involved in the development of the normative document, ensuring that diverse perspectives and industry needs were considered?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 2: Coherence: Does the document use consistent terminology, definitions, and structured language throughout, avoiding contradictions and inconsistencies?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 3: Cohesion: Does the document maintain structural and conceptual cohesion with previous versions, ensuring continuity and ease of transition for users?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

## 3.2.4 Overall assessment

|  |   |   |   |                                  |
|--|---|---|---|----------------------------------|
| 3. Calculate the overall quality of this document:   |   |   |   |                                  |
| 1<br>Lowes possible<br>quality   | 2 | 3 | 4 | 5<br>Highest Possible<br>Quality |
| 4. I would recommend this guideline for use.   |   |   |   |                                  |
| <input type="checkbox"/> Yes<br><input type="checkbox"/> Yes, but with care<br><input type="checkbox"/> No |   |   |   |                                  |
| Notes in support of your evaluation, <b>especially if you have chosen the option yes w/ care:</b>          |   |   |   |                                  |

NOTES:

### 3.3 Research Documents and Tools and Techniques Evaluation Form

For each question, please choose the response that best characterizes the item being assessed:

#### 3.3.1 Domain 1: Relevance

Item 1: Region/country of origin: How likely is the document to be applicable within the EU or the EEA?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.3.2 Domain 2: Practicality

Item 1: Open access: Is the document freely accessible to the public through the publisher's platform or repositories such as Google Scholar?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 2: Stakeholder involvement: Does the document demonstrate engagement with relevant stakeholders in the development of its findings, ensuring its applicability and credibility in chemical logistics safety?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 3: Applicability of methods: How easily can the methods presented in the document be applied by a wide range of practitioners, including those without specialized technical expertise?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 4: Comprehensible language: Is the document written in a clear and structured manner that makes it easy to understand for a broad audience, including researchers, policymakers, and industry professionals?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 5: Adaptability to a range of problems: Does the document provide findings, methods, or frameworks that can be applied to a broad range of hazardous materials transportation and logistics challenges, or is it highly specific to a particular context?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.3.3 Domain 3: Correctness

Item 1: Date of publication: How recent is the publication, and does it align with current regulatory frameworks, particularly the SEVESO Directive, which governs major industrial accident prevention in Europe?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 2: Citation count: How frequently has the research document been cited in peer-reviewed journals within the safety and engineering fields?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 3: Peer review process: Has the document undergone a structured peer-review process to ensure its quality, accuracy, and reliability?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

Item 4: Reproducibility: Can the findings or methods presented in the research document be independently reproduced based on the information and data provided?

|                                      |          |          |          |                                   |
|--------------------------------------|----------|----------|----------|-----------------------------------|
| <b>1</b><br><b>Strongly Disagree</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b><br><b>Strongly Agree</b> |
|--------------------------------------|----------|----------|----------|-----------------------------------|

Comments:

### 3.3.4 Overall assessment

5. Calculate the overall quality of this document:

|                                |   |   |   |                                  |
|--------------------------------|---|---|---|----------------------------------|
| 1<br>Lowes possible<br>quality | 2 | 3 | 4 | 5<br>Highest Possible<br>Quality |
|--------------------------------|---|---|---|----------------------------------|

6. I would recommend this guideline for use.

Yes

Yes, but with care

No

---

Notes in support of your evaluation, **especially if you have chosen the option yes w/ care:**

NOTES:

## 4 References

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