



Assessment framework The Validation and Innovation Point for Asbestos (VIP)

Version 2.0, June 2021

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Version history

This document has previously been revised in light of new insights, experience and changes to legislation and regulations.

Version 2.0, June 2021	The May 2020 version (version 1.0) was updated in light of new insights and experience.
Version 1.0, May 2020	Based on the health and safety regulations applicable at that time, protocol SCi-547 (version 2015) and protocol SCi-548 (version 2015).

References

SCi-547 (version 2015)	<i>'Protocol voor het valideren van nieuwe werkmethoden en/of innovatieve technieken met betrekking tot asbestverwijdering ten behoeve van het indelen in een risicoklasse ten behoeve van SMA-rt'</i> ('protocol for the validation of new methods and/or innovative techniques for asbestos removal for the purpose of their classification in a risk class for SMA-rt')
Protocol SCi-548 (version 2015)	<i>'Protocol voor het bepalen van de concentratie aan respirabele asbestvezels in de lucht tijdens het op projectniveau uitvoeren van asbestverwijderingshandelingen'</i> ('protocol for the identification of the concentration of respirable asbestos fibres in the air when carrying out asbestos removal work at project level')

About this document

Structure

This document consists of three parts: A, B and C. Each part has its own objective.

Part A describes how the Validation and Innovation Point for Asbestos (*Validatie- en Innovatiepunt Asbest (VIP)*) assesses dossiers and also includes a general explanation of the recommended dossier structure and the objective(s) of the various dossier sections and subsections. Part A focuses on dossier requesters and assessors.

Part B provides requesters with guidelines to follow when preparing dossiers in line with the structure explained in Part A. Part B describes the information the VIP needs to be able to assess dossiers.

Part C describes the assessment criteria the assessment team uses when assessing a method with a view to arriving at advice for the Ministry of Social Affairs and Employment (*Ministerie van Sociale Zaken en Werkgelegenheid (SZW)*).

The status of this document

This document aims to simplify and make the dossier assessment process more transparent and by doing this, shorten the process, by providing points of reference and guidelines on the preparation and assessment of dossiers to be submitted to achieve the national validation of methods. This document will be evaluated and updated on the basis of knowledge and experience that the VIP gains.

A. An explanation of the assessment dossier

Part A briefly introduces how the VIP assesses dossiers. It also includes a general explanation of the recommended dossier structure and the purpose of the various dossier sections and subsections. Part A focuses on both requesters (who submit dossiers) and assessors (who assess the dossiers submitted).

The VIP and the assessment dossier

Since June 2020, the VIP has been responsible for assessing requests for the national validation of methods for asbestos removal.

The VIP defines the term ‘national validation’ as follows: a process that demonstrates the possibility to safely use an asbestos removal method for the products and situations specified in the application domain.

Requesters are asked to provide the following to demonstrate the above:

- 1) A substantiated description of every aspect of a method and its practical implementation (‘how the method works’);
- 2) An exposure study that is carried out in line with the state of knowledge and measures the exposure of employees to asbestos while working as described in the method in question.

The dossier structure includes the two aspects above. This is elaborated on below.

The VIP only processes dossiers if they are complete. Its assessments are conducted on the basis of the information that requesters include in their dossiers. The VIP’s mandate does not include carrying out exposure studies or technical research itself when assessing dossiers. The concentration of asbestos fibres released by the use of a method in line with the control measures stipulated is assessed on the basis of the limit values in prevailing legislation and regulations. As such, responsibility for the accuracy, completeness and quality of a dossier lies with the requester. If dossiers are complete and of a high quality, this will help shorten the turnaround time and improve the efficiency of assessments.

An asbestos removal method must comply with the requirements imposed via relevant legislation and regulations, including health and safety regulations. As such, requesters themselves are responsible for ensuring that (innovative) products comply with the requirements of relevant regulations, including any (active) substances in the products, equipment or other items that are part of the methods to be assessed. The evaluation of these aspects falls outside the remit of the VIP. It cannot impose or accept any requirements that are not in line with prevailing legislation and regulations.

Once assessed, a dossier and its annexes are published on the VIP website together with the corresponding advice. Some parts of a dossier - the administrative information, summary and all or part of the ‘application domain’, ‘method’ and ‘exposure’ sections - are made publicly available in the context of the public consultation. If confidential company information is provided, it can be included in an annex to the dossier. Data about (sampled) individuals must be provided in an anonymised format, in line with the General Data Protection Regulation (GDPR).

Additional information about the VIP, the dossier-submission, assessment and public consultation processes and a list of frequently asked questions can be found on the VIP website (www.VIPasbest.nl).

The exposure study

This document is largely consistent with protocols SCI-547 and SCI-548. Protocol SCI-547 (version 2015) sets out the current state of knowledge and professional services for the performance of exposure studies for the purpose of national validation(s). Protocol SCI-547 refers to protocol SCI-548. The latter protocol focuses on the performance of measurements to establish the concentration of respirable asbestos fibres in the air during specific work to remove asbestos-containing materials, as described in the inventory report for a unique location or project. A different method may be used too, provided it is of an equivalent quality or better.

The protocols, or equivalent methods, above should be used to determine exposure levels to asbestos fibres while using a particular method. An appropriate management regime must be developed based on the exposure applicable. The protocols describe the minimum requirements to be met by an exposure study.

As each method has its own specific characteristics, requesters are responsible for ascertaining whether additional information is necessary - in the form of the results of additional measurements, for example. To this end, the VIP urgently advises that exposure studies are carried out and/or supervised by someone with a sound knowledge and experience of the organisation and performance of exposure studies (an occupational hygienist, for example).

Dossier structure

A general explanation follows below of the objective(s) of the various dossier sections and subsections. Part B briefly summarises the objectives and information requirements applicable for each dossier section and subsection.

The VIP expressly requires dossiers to be submitted in line with the structure described below, in order to simplify and expedite the dossier-preparation and assessment processes. If a requester deviates from the proposed dossier structure, it will be asked to prepare a supplementary document indicating where certain information can be found in its dossier. See Figure 1 for the schematic representation of the dossier structure and Table 1 for the corresponding description.

Figure 1: Schematic representation of the recommended dossier structure

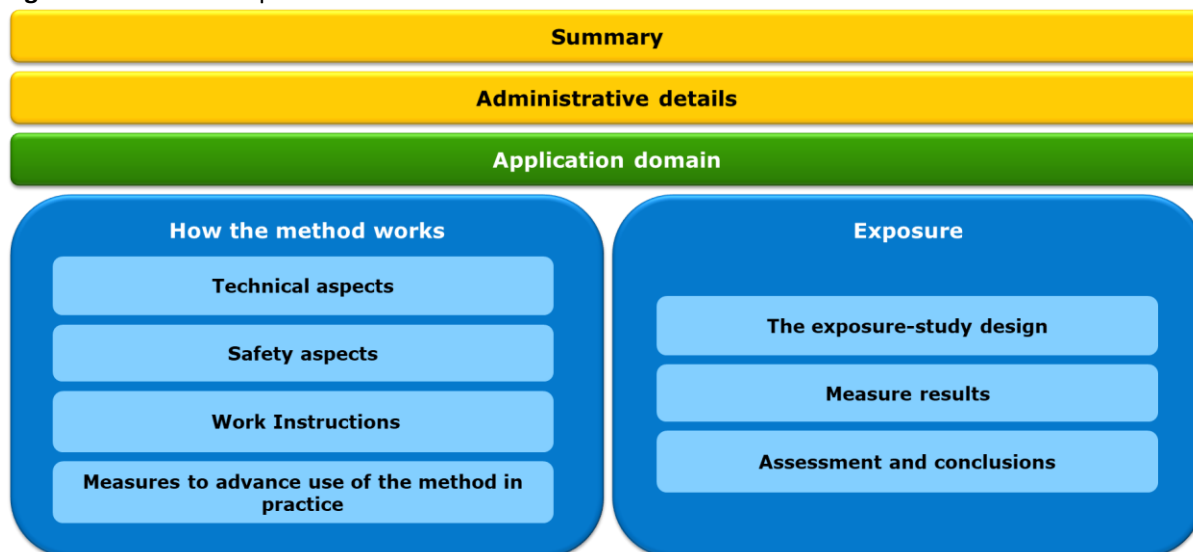


Table 1: Description of the dossier sections and subsections

Part	Description	Dossier part
Summary	Summary of the dossier	
Administrative information	Overview of administrative information	Section 1
Application domain	The situations in which the method may be used, subject to which conditions and preconditions. In other words, a description of the scope of the method	Section 2
How the method works	Every aspect of the practical implementation of the method	Section 3
Technical aspects	Explanation of the technical aspects of a method	Subsection 3.1
Safety aspects	A description of how the method can be used safely, including measures taken to avoid dangerous situations, or to reduce the risk of dangerous situations	Subsection 3.2
Work instructions	A description of the asbestos removal process, including a step-by-step plan to ensure the method is used correctly	Subsection 3.3
Measures to advance safe use of the method in practice	Activities that contribute to the safe use of the method	Subsection 3.4
Exposure	Every aspect of the underlying exposure study	Section 4
The exposure-study design	A description of the approach taken to the exposure study, including the measurement strategy, sampling and analysis chosen, and also how it is representative of the application domain described	Subsection 4.1
Measurement results	The measurement results obtained from the exposure study, including a description of the contextual information relevant for the assessment	Subsection 4.2
Assessment and conclusion	An assessment of the measurement results obtained from an exposure study and used to substantiate the safe use of the method within the application domain described	Subsection 4.3
Annexes	Annexes containing underlying information and reports	

Dossier structure and information requirements

Summary

The summary is a management summary of the main points of the various parts of a dossier. It is important for the summary to start with a concise explanation of the method in question and its principles.

Administrative information

This section shows how a dossier relates to any previous dossiers. The name and contact details of the requesting organisation are required too.

Application domain

The description of the application domain must clarify the types of asbestos-containing material or applications for which the method in question may be used, in which conditions and by who. Any conditions that could affect the level of exposure to asbestos are relevant here, including the tools to be used, the management measures to be taken, the activities permitted and the (maximum) work duration according to the method and environmental conditions. The limits of these parameters are important too (for example, the maximum percentage of asbestos).

How the method works

Technical aspects

This subsection explains the principles on which a method is based and how the method ensures that the effect envisaged is actually achieved. This can serve various purposes. For example, it could demonstrate the possibility to use a method safely in a certain management regime or the fact that the method is safe and more effective than an existing method.

A method may have been designed to prevent or reduce exposure to asbestos fibres. It could involve new, complex techniques, less complex techniques or existing methods. A method may be based on a piece of equipment or construction that is used to wet a surface with a certain product, to extract air at the source of exposure, to protect something or someone from the source of exposure or to avoid or reduce the emission and spread of asbestos fibres in another manner.

Any aspects of a method that are critical to the achievement of the effect/result envisaged must be included here as well. Examples include the pressure necessary or the extent to which the material is wetted.

Safety aspects

This subsection explains how the method in question can be used safely. On the one hand, this subsection must describe the dangers and possible risks associated with the method and its use. On the other hand, an explanation is necessary here of how the method can be used safely in day-to-day practice in the conditions that fall within the application domain. The measures taken to avoid dangerous situations or reduce the risk of situations of this nature must be described as well.

It is not the intention for requesters to include a hazard identification and risk assessment (*risico-inventarisatie en -evaluatie (RI&E)*) in their dossiers but to specifically elaborate on aspects that are critical for the safe use of a method, in the context of possible other dangers.

The following are some examples of possible dangers and dangerous situations:

- Critical steps in the work instructions that deserve extra attention because a dangerous situation could arise if a mistake is made;
- The use of equipment as part of a method. This equipment must meet certain requirements to ensure they can be used safely (for example, they must be fitted with a certain filter or have been awarded a certain quality mark);
- The use of hazardous substances and/or mixtures in the products used as part of a method;
- Environmental factors and conditions that could give rise to dangerous situations when using a method (for example, weather conditions, the presence of hazardous substances, working at heights).

Work instructions

This subsection describes the work instructions for a method. They cover the asbestos removal process, including a step-by-step plan that ensures a method is used correctly. The level of detail provided in work instructions must be such that the person implementing a method is able to do so in the manner envisaged. In other words, he/she must carry out the various steps in the right order, using suitable tools, in the conditions permitted, based on a realistic work duration and at the work speed appropriate in practice, etc.

Any critical aspects of a method that are described in the 'Technical aspects' subsection must be included in the work instructions as well. The same applies for the measures taken to avoid or reduce the risk of dangerous situations, as described in the 'Safety aspects' subsection.

Measures to advance safe use of the method in practice

This subsection explains additional actions or activities that contribute to the safe use of the method. For example, specific training for individuals who are to implement a method, the specifics of (compulsory) monitoring, the use of specific licences/licence systems and/or the use of video recordings. This subsection could also stress the importance of responsible behaviour with a view to possible dangers and risks.

Exposure

The exposure study shows which concentrations of exposure to asbestos fibres in the air there are when using a method. Measurements must be carried out in accordance with the state of knowledge. The VIP urgently advises that exposure studies are carried out and/or supervised by individuals with a sound knowledge and experience of organising and conducting exposure studies (an occupational hygienist, for example).

The exposure-study design

This subsection describes the exposure-study design, including the measurement strategy used in an exposure study in view of the application domain and the work instructions. The sampling and sample analysis methods applicable must be outlined in this part of the dossier too.

The measurements taken with a view to achieving the national validation of a method may have been obtained from a number of exposure studies during specific project validations or within a single exposure study carried out specifically at a number of locations. It is important that the preconditions and limits described in the application domain are included in an exposure study and substantiated in this subsection. Measurements must be taken in realistic worst-case conditions, as set out in Protocol SCi-548. See this protocol for more information and examples of realistic worst-case situations. Also, when formulating a measurement strategy, allowance must be made for

possible variations in exposure level when measurements are carried out at different locations, by different asbestos removers and asbestos removal companies.

The underlying exposure report(s) must be included as an annex or annexes to the dossier in question. If the report(s) do(es) not contain the individual measurement data, it must be included in an annex to the dossier.

Measurement results

This subsection describes the measurement results obtained from an exposure study and also the conditions applicable when the measurements were taken, also referred to as contextual information. This information is important for the assessment of measurement results. The calculations and results of the relevant statistical analysis must be included too. Requesters are responsible for delivering all measurement results. Measurement data that has prompted the revision of a method may not directly be used to validate the ultimate (updated) method because it was not obtained while using the ultimate method. However, it may be used to substantiate why certain choices were made when developing the method in question.

Assessment and conclusion

This subsection describes the (statistical) assessment of measurement results and briefly outlines the conclusion ensuing from an exposure study. In this subsection, reference must be made to the application domain described and requesters must demonstrate that the conclusion applies to the application domain as a whole. If the aim is to remove asbestos subject to a less stringent management regime, requesters must demonstrate with enough statistical certainty that exposure to asbestos fibres in the air will stay below the statutory limit.

Annexes

Underlying information may be provided in annexes to a dossier. A number of examples have already been given. However, requesters will be free to decide on how many annexes to add and also how to number them, independent of the amount and nature of the underlying information. Any annex that contains confidential information must be classified as such.

B. Dossier information requirements

This part of the dossier sets out the recommended dossier structure (see Box 1). An explanation is provided of the objective per section and subsection and also the information requirements applicable. A general explanation of the various sections can be found in Part A of this document.

The information requirements stipulated are not exhaustive, because of which requesters must ascertain which information is needed to arrive at a proper substantiation of each part and, by doing this, a satisfactory substantiation of the method in question.

Box 1. The recommended dossier structure

<u>SUMMARY</u>	
<u>SECTION 1</u>	<u>ADMINISTRATIVE INFORMATION</u>
<u>SECTION 2</u>	<u>APPLICATION DOMAIN</u>
<u>SECTION 3</u>	<u>HOW THE METHOD WORKS</u>
	<u>3.1 Technical aspects</u>
	<u>3.2 Safety aspects</u>
	<u>3.3 Work instructions</u>
	<u>3.4 Measures to advance safe use of the method in practice</u>
<u>SECTION 4</u>	<u>EXPOSURE</u>
	<u>4.1 The exposure-study design</u>
	<u>4.2 Measurement results</u>
	<u>4.3 Assessment and conclusion</u>
<u>ANNEXES</u>	

Summary

The objective of this section

To provide a (management) summary of the information leading to the conclusion that a method can be used safely in the application domain described.

Aspects to be included:

- The name of the method;
- A brief explanation of the method, including its principles;
- The application domain;
- How the method works;
- The exposure study;
- The conclusion(s).

Section 1 Administrative information

The objective of this section

To explain how a dossier relates to any previous dossiers. Also, to provide the name and contact details of the requesting organisation.

Information to be provided

Form

The contact details of the requesting organisation/company: name, address, general e-mail address and general telephone number
Has the method for which national validation is being requested been submitted to the VIP or Commission Sci-547 before? If yes, on which date and with which dossier number/name?	Yes/no

Section 2 Application domain

The objective for this section

To describe the situations and conditions in and the preconditions under which a method for which national validation is being requested may be used. In other words, to describe the scope of a method.

The information to be provided at the very least, if applicable

- The asbestos-containing material(s) on which the method can be used:
 - Type(s) of asbestos-containing material;
 - Type(s) of asbestos-containing application(s);
 - Type of asbestos (chrysotile and/or amphibole asbestos) and the maximum concentration limits (% of asbestos in the material);
- Fixing methods and 'accessibility' of the application;
- The environmental conditions permitted (inside/outside, weather conditions, climatological conditions (temperature and air humidity) and type of space, etc.);
- The condition of the material (the amount of weathering and damage). For more information, see Annex 1: 'Explanation of the condition of the material';
- The activities and combination of activities permitted;
- The management measures to be applied and/or the personal protective equipment to be used;
- The tools permitted;
- The length of time for which the method may be used during the course of one working day;
- The professional group envisaged for asbestos removal. For example, certified asbestos removers, general contractors, glaziers or maintenance staff.

Section 3 How the method works

The objective of this section

To describe every practical aspect of asbestos removal.

This section consists of the following subsections:

- 3.1 Technical aspects
- 3.2 Safety aspects
- 3.3 Work instructions
- 3.4 Measures to advance safe use of the method in practice

3.1 Technical aspects

Objectives of this subsection

To describe the essence of the technical aspects of a method, in order to enable readers to gain an understanding of the method without being given a detailed step-by-step plan.

The information to be provided at the very least, if applicable

- A description of the method and an explanation of the principles on which the method is based. This could involve new, complex techniques but also less complex or existing methods;
- As specific a description as possible of which characteristics, elements and/or components are essential for the achievement of the result envisaged;
- A description of how these characteristics, elements or components lead to the effect/result envisaged;
- A description of any aspects of the method that are critical for the achievement of the effect/result envisaged.

3.2 Safety aspects

Objectives of this subsection

To substantiate the safe use of a method.

The information to be provided at the very least, if applicable

- An explanation of why the method is appropriate and possible to use safely:
 - in day-to-day practice, in various conditions, in relation to the application domain defined;
 - within the limits described in the application domain;
 - in realistic worst-case situations;
- A description of critical aspects in the method. For example:
 - The critical steps of the method;
 - The consequences of possible technical failure and human error;
- The identification of possible other dangers. For example:
 - Environmental factors;
 - The equipment necessary, the chance and consequences of technical failure;
 - The use of hazardous substances and/or mixtures;

- A description of specific measures to avoid the critical aspects and dangerous situations referred to above or to limit the chance of their occurrence;
- A substantiation of the effectiveness of the measures above.

3.3 Work instructions

Objective

To describe the asbestos removal process, including a detailed step-by-step plan to ensure that a method can be used correctly.

The information to be provided at the very least, if applicable

- Work instructions that clarify:
 - the activities to be carried out;
 - the order in which activities are to be carried out;
 - the tools suitable and the use envisaged for them;
 - a realistic work duration/work speed;
 - the conditions permitted;
- The work instructions will explain the following:
 - The materials needed;
 - Preparation work;
 - Actual use of the method;
 - The clean-up and handover of the work area;
 - Waste disposal.
- The measures taken to:
 - avoid dangerous situations or limit the chance of them occurring;
 - avoid and/or reduce the chance of technical failures and human error.

3.4 Measures to advance safe use of the method in practice

Objective

To explain which measures can be taken to contribute to the safe use of a method.

Possible aspects

- The specific training, education, knowledge and skills of the individuals carrying out the work;
- The specifics of (compulsory) monitoring;
- The use of specific licences/licence systems;
- Supervision and audits, etc.;
- The minimum level of expertise necessary for the person using the method;
- A specification of who is responsible for implementing measures to advance safe use of the method in practice;
- Other aspects that could advance use of the method in practice.

Section 4 Exposure

Objective

To describe and assess an exposure study that has been carried out, to demonstrate the level of exposure to asbestos fibres when using the method in question, based on realistic worst-case conditions. If the aim is to remove asbestos aided by the method in a less stringent management regime, requesters must demonstrate with enough statistical certainty that exposure to asbestos fibres in the air will stay below the statutory limit value.

This section consists of the following subsections:

- 4.1 The exposure-study design;
- 4.2 Measurement results;
- 4.3 Assessment and conclusion.

4.1 The exposure-study design

Objective

To describe and substantiate the measurement strategy chosen in light of the application domain.

The information to be provided at the very least, if applicable

- The exposure-study design, including the measurement strategy (and the number of measurement locations, the number of asbestos removers and asbestos removal companies involved, personal/stationary measurements, the number of measurements, repeat measurements, measurement duration and flow);
- Substantiation that the measurements carried out:
 - were performed with realistic worst-case situations in mind;
 - encompass the entire application domain;
 - correspond with the method described in Section 3.
- Sampling and analysis:
 - Equipment used for sampling. For example which type of filter, which type of pump and the manufacturer and specification of the type of equipment used;
 - Analysis method, including the standards observed, the limits of quantification applied and calibration of the measurement equipment used.

4.2 Measurement results

Objective

To describe the measurement results obtained from an exposure study, including contextual information.

The information to be provided at the very least, if applicable

- An overview of contextual information, including but not limited to a description of:
 - the asbestos-containing material;
 - the activities carried out;
 - the tools used and the management measures applied;
 - the environmental condition(s);

- An overview of the measurement results, including but not limited to (also see Table 1 in Protocol SCi-548 version 2015, *Te registreren contextuele informatie* ('contextual information to be registered')):
 - measurement location;
 - the individuals sampled. Data about the individuals sampled must be provided in an anonymised format for privacy reasons (GDPR);
 - measurement start and end times;
 - start and end flow measurements;
 - measurement duration;
 - the volume of air collected;
 - the number of image fields studied;
 - the number and type of asbestos fibres found;
 - the analysis result.
- Any other relevant results (for example, the results of baseline measurements, stationary measurements, material samples and adhesive samples);
- Information about any deviations from the measurement plan drawn up and substantiation of the extent to which the deviation(s) influence the results obtained;
- An explanation of calculations and statistical analyses; for instance, the response to measurement results below the limit of quantification and the statistical assessment method used;
- The results of the relevant statistical analysis or analyses, including the allowance made for the homogeneity of the exposition group;
- Illustrative images, with a strong preference for film/video recordings but in the form of photographs at the very least;
- Any measurement data that has not been included in the final analysis, with a substantiation of why this data has not been included;
- Any measurement data that prompted the revision of the method.

Overview table

The contextual information (per study), measurement results (per study) and statistical evaluation (per application domain) must be provided in an overview table (see Annex 2, which is also possible to download as a Word file from the VIP website).

4.3 Assessment and conclusion

Objective

To describe the assessment of measurement results obtained from and the conclusion of an exposure study and explain why the conclusion is valid for the application domain as a whole, including realistic worst-case situations.

The information to be provided at the very least

An analysis of the measurement results (Subsection 4.2 Measurement results) demonstrating that it has been sufficiently proved that exposure to asbestos will stay under the limit value when using the method described.

Annexes

A number of examples of annexes follow below. However, requesters are free to decide how many annexes to submit and also how to number them, depending on the number and nature of the underlying information. The annexes will preferably be included with the dossier in the form of separate files.

Underlying reports

An underlying report or reports must be added to the dossier as a (separate) annex or annexes. If added in the form of a separate file or files, a list of documents must be included. Each document must be identified uniquely (on the basis of a number, project name, the name of the implementing party and a brief description).

Individual measurement data

If an underlying report or reports do(es) contain individual measurement data, this data must be added as an annex to the dossier and include data obtained from measurements that have been assessed as invalid. Requesters must also state the basis on which the measurements in question were assessed as invalid.

If data is included with the dossier in the form of separate files, a list of documents must be added to this subsection. Each document must be identified uniquely (on the basis of a number, project name, the name of the implementing party and the type of data being included).

Other information

Other information could be a reference to video recordings that have been sent with the dossier in a suitable format.

Information that is not directly relevant for the request in question (for example, measurement studies that are not used to substantiate the request or future measurement studies) must not be included in the dossier itself but in a separate annex.

Confidential company information

This is the type of information that is to be treated as confidential company information.

C. Evaluation and assessment criteria

This part of the dossier describes the assessment criteria the assessment team uses when assessing a method and formulating advice for the Ministry of Social Affairs and Employment.

Dossiers are evaluated to assess whether the methods in question can be used safely. The assessment questions below pertain to the different sections and subsections of the dossier, depending on the type of dossier.

Application domain

- Has the application domain been defined clearly, showing the areas relevant, and has the scope of the application domain been identified with a sufficient level of clarity?
- Is it clear which professional group(s) is or are responsible for removing asbestos?
- Have the situations, conditions and preconditions that could result in exposure to asbestos been identified sufficiently?

How the method works

Technical aspects

- Are the principles on which the method is based sufficiently clear?
- Is it sufficiently clear how the method will ensure the achievement of the effect envisaged?
- Are all aspects of the method that are critical for the achievement of the effect envisaged sufficiently clear?

Safety aspects

- Is it sufficiently clear why the method can be used safely within the limits of the application domain, including realistic worst-case situations?
- Have safety-related critical aspects, steps and elements been identified sufficiently?
- Have any of the other dangers referred to in Part B of the dossier been identified sufficiently?
- Is it sufficiently clear which measures and/or approach will ensure that the method is safe to use?
- Is it clear why the measures and/or approach described are/is sufficiently effective?

Work instructions

- Are the work instructions possible to follow in practice and are they unambiguous?
- Can the work instructions be applied in various conditions and in relation to the application domain defined?
- Do the work instructions sufficiently cover the critical steps and aspects described in the technical part of the dossier?
- Have the measures and/or approach put in place to ensure the safety of the method, as described in the safety aspects part of the dossier, been included in the work instructions in a relevant manner?

Measures to advance safe use of the method in practice

- Do the measures designed to advance use of a method reflect the complexity of the method?

Exposure

The exposure-study design

- Does the exposure-study design reflect the state of knowledge?
- Does the exposure study cover the application domain as a whole?
- Has it been sufficiently substantiated that measurements were obtained in realistic worst-case conditions relevant to the application domain?
- Is there sufficient variation in terms of measurement locations and the asbestos removal companies and asbestos removers involved? If not, has it been sufficiently substantiated why a small level of variation is sufficient for the request in question?

Measurement results

- Is the overview of measurement results complete?
- Is the overview of contextual information complete?
- Have the calculations - for example the conversion of the concentration measured into an eight-hour time-weighted average concentration - and statistical analyses been carried out correctly?
- Has allowance been made for the homogeneity of the exposition group?
- Has it been sufficiently demonstrated that the results of the exposure study are sufficiently representative of the application domain described and the work instructions proposed?

Measurement results, exposure assessment and conclusions

- Has the conclusion drawn by the requester been sufficiently substantiated and is it clear?

ANNEX 1 Description of the level of damage and resilience in SMA-rt

Damage in relation to the condition of the product:

- *Not damaged/slightly damaged*: a product is 'not damaged' or 'slightly damaged' if all the descriptions below apply:
 - The overall condition of the product, as observed visually, is good to very good
 - The product has no scratches or just several superficial scratches that do not affect the integrity of the product (it is very likely that the scratch or scratches will not cause the product to break)
 - The product has no small breaks or holes or just several small breaks or holes that do not affect the integrity of the product
 - There are no exposed fibres
- *Moderate/serious damage*: a product has moderate to serious damage if one or more of the descriptions below apply:
 - The product has a number of (deep) scratches, cracks or cuts, which have been caused by mechanical influences other than weathering
 - The product has a number of/big breaks, cracks and/or holes
 - The product has crumbling edges or corners
 - The integrity of the product has been affected by scratches, cracks, cuts or holes, etc.
 - There are exposed fibres

Weathered:

- *No weathering/slight weathering*: a product has no weathering to slight weathering if all the descriptions below apply:
 - Damage to the surface varies between barely any damage to slight damage
 - The product has a smooth/flat surface with no rough areas, or pitting or just local rough areas and pitting
 - The fibres are enclosed fully in the matrix
 - No delamination (loose flakes/layers) is visible on the surface or the edges
 - There are barely any fibre residue or flakes in the immediate vicinity of the product
- *Moderately/seriously weathered*: a product is (moderately to seriously) weathered if one or more of the descriptions below apply:
 - The surface of the product is damaged
 - The surface of the product is rough and possibly pitted too
 - Many or some of the fibres are visibly loose on the surface and are no longer fully enclosed in the matrix
 - Delamination (loose flakes/layers) is visible on the surface and edges
 - There are fibre residue and flakes in the immediate vicinity of the product

Source:

Voogd E, Schinkel J. *Herindeling SMA-rt risicoklasseindeling in het kader van de grenswaardeverlaging voor amfibool asbest per 1 januari 2017. TNO report TNO 2017 R10101, 28 February 2017.*

Annex 2 Format for the exposure-study overview table

An overview table of contextual information (per study), measurement results (per study) and statistical evaluation (per application domain)* follows below

Application domain		Application domain 1			Application domain 2			
Validation study (incl. reference to annex)								
Contextual information per study	Type of asbestos-containing application(s) and composition (incl. type and % of asbestos)							
	Bonding strength							
	Condition of the material							
	Environmental conditions (inside/outside, temperature, humidity)							
	Activity or activities carried out							
	Duration of the activities carried out (range)							
	Tools used							
	Management measure(s) applied							
	Number of measurements	PAS						
		STAT						
	Year in which measurements carried out							
	Number of asbestos removers sampled							
PAS measurements per study	Measurement duration (range)							
	Number of measurements plus measurement duration <1 hour							
	Volume of air collected (range)							
	Number of image fields studied (range)							
	Limit of quantification (range)							
	Number of measurements <limit of quantification							
	Number of fibres counted (range)							
	Type of fibres counted							
	Mean							
	Standard deviation							
	Range (minimum-maximum)							
Statistical evaluation per application domain	Number of measurements used for statistical evaluation							
	Mean							
	Standard deviation							
	Range (minimum-maximum)							
	Number of measurement locations							
	Number of asbestos removal companies							
	Number of measurements <limit of determination							
	Uniformity of the distribution, (Parameter U + limit value)							
	Within-worker variance							
	Between-worker variance							
Between-location variance								

Mean: Geometric mean, GSD: Geometric standard deviation, PAS: personal air sampling (personal measurements in the breathing zone of the employee), STAT: stationary measurements

* The format for the overview table can be downloaded as a Word file from the VIP website