Title: The REACH Enforcement (Amendment) Regulations 2014

IA No: HSE0080

Lead department or agency:
Defra

Other departments or agencies:
Health and Safety Executive

Impact Assessment (IA)

Date: September 2014

Stage: Final

Source of intervention: EU

Type of measure: Secondary Legislation

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Summary: Intervention and Options

RPC Opinion: Not applicable

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, Two-Out?**	**Measure qualifies as**
£18.77 million	£18.90 million	-£1.87 million	No	N/A

What is the problem under consideration? Why is government intervention necessary?

Since 6th June 2012, the sale, purchase and use of dichloromethane-based paint strippers for non-industrial purposes has been banned in the UK, as the result of a restriction under the EU REACH Regulations. A conditional derogation for professional users is available under the restriction, though has not yet been enacted in the UK. Paint strippers containing DCM are particularly effective at quickly removing leaded paint and other durable coatings, and more cost-effective than alternatives in a broad number of applications. They are especially suitable for removing surface coatings without damaging a valuable substrate and so are important in the restoration and maintenance of heritage buildings and machinery, and antique restoration.

DCM-based paint strippers can be used safely provided workers receive proper training and take appropriate precautions. Government intervention is therefore necessary to enact the conditional derogation in order to address over-regulation of DCM-based paint strippers, and the associated loss in economic efficiency arising from the need to use more expensive and less effective alternatives.

What are the policy objectives and the intended effects?

The policy objectives in enacting the conditional derogation are to:

- ensure users of DCM-based paint strippers are competent, understand the risks and applying safe working practices;
- enable professionals to realise cost savings in using DCM-based paint strippers over alternatives, where they are trained in their safe use.
- minimise the use of hazardous alternatives to DCM-based paint strippers
- ensure industry sectors can safely use DCM outside industrial installations

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

- Policy Option 1 (Baseline): Do nothing; the restriction remains in force without derogation
- Policy Option 2: Amend the REACH Enforcement Regulations 2008 (S.I. 2008/2852) to take up the conditional derogation to allow trained and competent professionals to purchase and use DCM-based paint-strippers

Policy Option 2 is the preferred option, as it delivers considerable cost savings to businesses whilst ensuring that health and safety risks of DCM use are appropriately controlled. HSE have considered non-regulatory approaches to taking up this derogation, but HSE and DEFRA legal advisors have advised that a minimal legislative amendment is necessary to take full advantage of the derogation opportunity. Option 2 is consistent with broader UK government policy to take up derogations as fully as possible, where it is appropriate to do so.

Will the policy be reviewed? It will not be reviewed. **If applicable, set review date:**

Does implementation go beyond minimum EU requirements?			No		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** n/a	**Non-traded:** n/a	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Minister: de Mauley Date: 25th October 2014

Summary: Analysis & Evidence

Policy Option 1

Description: Do nothing; the restriction remains in force without derogation.

FULL ECONOMIC ASSESSMENT

Price Base Year 2010	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 0	High: 0	Best Estimate: 0

COSTS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Cost** (Present Value)
Low	0		0	**0**
High	0		0	**0**
Best Estimate	0		0	**0**

Description and scale of key monetised costs by 'main affected groups'

This 'Do nothing' option is taken as the baseline scenario (i.e. what would happen without further action) that the impacts of Option 2 are assessed against. Therefore, there are no *additional* costs or benefits for the do nothing (Option 1). Costs incurred by professionals from the use of less cost-effective paint stripping alternatives due to the DCM restriction, which would be avoided under the derogation, are assessed as *cost-savings* under Option 2.

Other key non-monetised costs by 'main affected groups'

BENEFITS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Benefit** (Present Value)
Low	0		0	**0**
High	0		0	**0**
Best Estimate	0		0	**0**

Description and scale of key monetised benefits by 'main affected groups'

This is the baseline option so there are no additional costs and benefits.

Other key non-monetised benefits by 'main affected groups'

Key assumptions/sensitivities/risks

Discount rate (%) n/a

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			**In scope of OIOO?**	**Measure qualifies as**
Costs: n/a	**Benefits:** n/a	**Net:** n/a	No	Not Applicable

Summary: Analysis & Evidence

Policy Option **2**

Description: Take up the derogation to allow trained and competent professionals to use DCM-based paint-strippers

FULL ECONOMIC ASSESSMENT

Price Base Year 2010	PV Base Year 2014	Time Period Years 10	Net Benefit (Present Value (PV)) (£m)		
			Low: 10.13	High: 29.45	Best Estimate: 18.77

COSTS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Cost** (Present Value)
Low	1.1	3	0.01	**1.2**
High	2.1		0.01	**2.2**
Best Estimate	1.6		0.01	**1.7**

Description and scale of key monetised costs by 'main affected groups'

- One-off total cost of £1.3 million over approximately 6,750 painter-decorators, or around £195 each, for undertaking training and testing on safe use of DCM, spread over first three years of appraisal period.
- One-off total familiarisation and search costs of £90,000 to painter-decorators, arising mainly from time taken to search for an appropriate training provider.
- One-off total cost of £184 thousand to sellers of DCM-based due to time taken to familiarise with derogation requirements.
- Total (one-off plus annual) costs to HSE of £130 thousand from the set up and maintenance of an online competence test for professionals

Other key non-monetised costs by 'main affected groups'

- Travel costs by painter-decorators to training / testing venue

BENEFITS (£m)	**Total Transition** (Constant Price)	Years	**Average Annual** (excl. Transition) (Constant Price)	**Total Benefit** (Present Value)
Low	0		1.4	**12.3**
High	0		3.6	**30.7**
Best Estimate	0		2.4	**20.5**

Description and scale of key monetised benefits by 'main affected groups'

- Recurring annual cost savings of £2.4 million to professional paint-strippers able to substitute DCM-based paint-strippers under the derogation for less cost effective chemical alternatives.

Other key non-monetised benefits by 'main affected groups'

- It has not been possible to estimate avoided costs (savings) to professionals switching from non-chemical paint stripping methods e.g. heat treatment, blasting or sanding due to their range and complexity. These are assumed to account for around two-thirds of paint stripping work in the base case, so the potential savings are considerable.
- Avoided additional labour costs due to increased application time of some paint-stripping alternatives.
- Avoided potential loss of or damage to heritage items arising from the use of non-DCM paint stripping methods.

Key assumptions/sensitivities/risks **Discount rate (%)** 3.5

- The analysis assumes that a similar number of professionals will use a similar quantity of DCM-based paint strippers following enactment of the derogation as before the restriction was in place. Where fewer professionals choose to take advantage of the derogation, and this leads to a lower volume of DCM use relative to alternatives, both costs and benefits will be lower than estimated. However, the cost-effectiveness of DCM-based paint strippers relative to alternatives and responses to the consultation strongly suggest that the uptake of DCM-formulations following enactment of the derogation would be very high.
- Other key assumptions include: the number of painter-decorators undertaking training (6,750), the likely training fee (£120), and the cost saving of DCM-based paint strippers relative to alternatives (£3.10/kilo).

BUSINESS ASSESSMENT (Option 2)

Direct impact on business (Equivalent Annual) £m:			**In scope of OIOO?**	**Measure qualifies as**
Costs: 0.2	**Benefits:** 2.0	**Net:** 1.9	No	Not Applicable

Evidence Base (for summary sheets)

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1. PROBLEM UNDER CONSIDERATION

1. Dichloromethane (DCM) is a colourless, volatile liquid and very effective solvent.

2. DCM is typically used in industrial and DIY paint-stripping formulations; as a process solvent in the pharmaceutical industry; as a solvent in adhesives; and in certain aerosols e.g. paints and varnishes.

3. Breathing in DCM vapour can produce narcotic effects. These include drowsiness, headache, giddiness and, at high concentrations, unconsciousness and death. Skin and eye contact should be avoided since DCM exposure can produce severe irritation. DCM evaporates easily, which can result in high concentrations of vapour, particularly in confined spaces or where ventilation is inadequate. DCM has also been classified as a Category 3 carcinogen.

4. In view of this, and the availability of alternative products, the European Parliament and the Council have added DCM to Annex XVII of the EU REACH Regulation, placing a restriction on the supply of DCM-based paint strippers to the general public or to professionals across the EU, including the UK.

5. The new restriction makes a distinction between industrial, professional, and consumer use of DCM-based paint strippers. For the purposes of the restriction:

    - 'industrial' use means use of paint strippers in 'industrial installations'.
    - 'professional' use means use by workers in the course of their work activity where this takes place away from an industrial installation.
    - 'consumer' use means use by the general public, such as DIY.

6. Since 6 December 2010, formulators of paint strippers containing DCM have been prohibited from placing such products on the market for the first time, except for use in 'industrial installations' (where risks can typically be controlled by use of appropriate fixed ventilation, lids to suppress vapour, etc.). From 6 December 2011, the restriction was extended to sale of remaining stocks. Users were then allowed a further 6 months (until 6 June 2012) to use up their old stock.

7. The present restriction permits the continued use of DCM-base paint strippers in industrial installations, provided users meet certain workplace safety conditions (such as effective exhaust ventilation or respiratory protective equipment, enclosed strip tanks and appropriate gloves). This provision for industrial installations does not require Member States to make separate domestic arrangements, as it is written into the restriction text itself. The restriction also permits the sale of DCM-based paint strippers for these uses.

8. The new restriction also includes a conditional derogation, which can be used by Member States to permit the continued supply of paint strippers containing DCM to professionals who have been trained in their safe use, and the continued use of these products by such professionals.

2. RATIONALE FOR INTERVENTION

9. Paint strippers containing DCM are particularly effective at removing leaded paint and other durable coatings, and so are important in applications such as the restoration and maintenance of heritage buildings and machinery, antique restoration, and also graffiti removal.

10. In situations where reasonably practicable alternatives (chemical or other stripping processes) carry a higher risk than using DCM, DCM-based paint strippers can be used safely provided workers receive proper training and use the appropriate precautions.[1]

11. The UK negotiated a conditional derogation, which can be used by Member States to permit the continued supply and use of paint strippers containing DCM to professionals who have been trained in their safe use, when it is the safest method available.

12. UK government policy is to take up derogations as fully as possible, where it is appropriate to do so. The economic rationale for doing so in this case is to avoid over-regulation of DCM-based paint strippers and the associated loss in economic efficiency arising from the need to use more expensive and less effective alternatives.

13. In view of representations made by professionals wishing to use DCM in their work, the UK is planning to take up this derogation from the restriction for professional use outside industrial installations. To do so, it is necessary for both the UK government and stakeholders to make arrangements to meet the conditions of the restriction text, including that a law be passed and a training scheme established.

3. POLICY OBJECTIVE

Government's objectives are:

- to ensure that those using DCM-based paint strippers in future are competent to do so, understand the risks and are applying safe working practices;
- to enable professionals to realise cost savings in using DCM-based paint strippers over alternatives, where they are trained in their safe use.
- To minimise the use of hazardous alternatives to DCM-based paint strippers, such as grinding or burning leaded paint
- To ensure industry sectors including Conservation, Martine and Aerospace can safely use DCM outside industrial installations
- To allow UK formulators and suppliers to provide DCM paint strippers for professional users in the UK.

4. DESCRIPTION OF OPTIONS CONSIDERED (INCLUDING DO NOTHING)

4.1 Policy option 1: Do nothing.

14. If the UK takes no action, then the full EU restriction on DCM-based paint strippers would remain in force for both consumer and professional users (use in industrial installations is allowed). Other options will be compared against this baseline/status quo.

4.2 Policy option 2: Take up the derogation; training providers free to establish training schemes but professionals must pass test to validate learning

15. Under policy option 2, the UK Government would enact the negotiated derogation. This would allow the sale of DCM-based paint strippers for use by competent and trained professionals. The opportunity to allow use of DCM-based paint strippers does not apply to consumer use.

1 Precautions available to manage the risks associated with DCM include forced ventilation, which removes the hazardous fume from a work area, and respiratory protective equipment, which filters the fume in order to prevent worker exposure.

16. Sale of DCM-based paint strippers would be permitted for use by professionals if both of the following two conditions are met: 1) professionals have completed training in their safe use that meets the requirements of the derogation; and 2) they have gained a certificate of competence by achieving a pass mark on a test on the safe use of DCM-based paint strippers.

17. Option 2 is therefore that Government makes the necessary legal arrangements to take up the derogation in order that a training competence scheme can be established by training providers, so that those who wish to use DCM-based paint strippers in a professional capacity under the derogation can be properly trained.

18. Under the proposal, training providers would be free to develop and deliver training in the safe use of DCM-based paint strippers in any format and make this accessible to professional users by whatever means they see fit, as long as the syllabus meets the requirements for "specific training" provided in the derogation, which require as a minimum:

> (a) awareness, evaluation and management of risks to health, including information on existing substitutes or processes, which under their conditions of use are less hazardous to the health and safety of workers;
>
> (b) use of adequate ventilation; and
>
> (c) use of appropriate personal protective equipment.[2]

19. In order to validate learning upon completion of training and thus meet the requirements of the derogation, professionals would also be required to obtain a certificate of competence issued by Health and Safety Executive (HSE) after passing an online test set by the HSE, as a condition for the sale and use of DCM-based paint strippers.

4.3 Preferred Option

20. Option 2 is the preferred policy option. This option cost savings to businesses whilst ensuring that health and safety risks of DCM use are appropriately controlled.

4.4 Alternatives to Regulation

21. HSE have considered non-regulatory approaches to taking up this derogation, but HSE and DEFRA legal advisors have advised that a minimal legislative amendment is necessary to take full advantage of the derogation opportunity.

22. Any non-regulatory approach would result in the use of DCM being illegal for all professional users, regardless of any training they had.

5. MONETISED AND NON-MONETISED COSTS AND BENEFITS OF EACH OPTION

23. As an enabling policy, professionals are free to take advantage of the deregulatory mechanism (derogation) voluntarily; costs to business arising from this voluntary action are *not imposed*. Our analysis is therefore of the actual costs that would result if businesses voluntarily took up training and used DCM-based paint strippers.

24. Given the deregulatory and permissive nature of the proposal (which, as part of an EU Regulation, is out of scope of One-In-Two-Out), we take a proportionate approach to the

2 Commission Regulation (EU) No 276/2010 of 31 March 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII (dichloromethane, lamp oils and grill lighter fluids and organostannic compounds).

analysis of impacts. Costs and benefits have been identified and quantified / monetised where possible. Where it is not deemed proportionate to do so, this has been highlighted and justified.

25. In addition to the formal consultation (see Section 5.2), HSE has undertaken extensive informal consultation in order to inform this assessment. A wide range of stakeholders has been approached for information. In particular, formulators of paint strippers that are based on DCM and its alternatives have been asked for information about their products, costs and the implications of the restriction. Industrial and other users have also been asked for comments, and in particular, specialist users of DCM-based formulations in conservation have provided detailed responses.

26. A number of specific assumptions have been made to reflect inherent uncertainties about the impacts of a derogation and future market conditions. These assumptions are detailed under the relevant sections of this assessment as well as in the 'Analysis Proportionality' section.

27. During formal consultation (November 2013 – January 2014) stakeholders were provided an opportunity to comment on these assumptions. 80% of stakeholders either agreed with the assumptions or made no comment. Of those that had concerns, none provided quantifiable alterative costs, furthermore the issues raised had already been considered and highlighted in the pre-consultation evidence assessment (more detail is provided in Section 5.2 'Consultation Responses')

5.1 General assumptions

28. This analysis considers costs and benefits that extend into the future. Consequently, it is important for any monetised impacts to be expressed in present values to enable comparison between policies. The discount rate used to generate these present values is defined in the Green Book[3] as 3.5% for any appraisal period of less than 30 years.

29. Guidance issued by the Department for Business, Innovation and Skills[4] states that where a policy has costs and benefits that extend into the future and the policy has no identifiable end point, the impacts of the policy should be appraised over ten years. As this is the case for this policy, an appraisal period of ten years is used when considering the impact of costs and benefits in the future.

30. All costs and benefits are calculated for the United Kingdom (Great Britain and Northern Ireland). Estimates are given in constant (2010) prices.

31. Wage data is taken from the Office for National Statistics' Annual Survey of Hours and Earnings (ASHE) 2010.[5]

32. This assessment assumes the derogation would come into force in early 2014 and adopts this as the first year of the appraisal period.

5.2 Consultation responses

33. A formal consultation was held between 7th November 2013 and 3rd January 2014, and 30 responses were received. The vast majority of stakeholders (27 out of 30) supported taking

3 http://www.hm-treasury.gov.uk/d/green_book_complete.pdf

4 http://www.bis.gov.uk/assets/biscore/better-regulation/docs/i/11-1112-impact-assessment-toolkit.doc paragraphs 82-84

5 Calculations were made at an earlier date when ASHE (2010) was the most up-to-date source. Given that wages are relatively stable between years, we do not consider it necessary to recalculate these estimates using the most recent ASHE data.

up the derogation, providing examples where DCM-based products were not only essential for certain stripping tasks, but in many cases safer than alternative procedures. Only two stakeholders (both manufactures of alternatives to DCM) felt no justification existed for the professional use of DCM-based paint strippers.

34. Very little information was provided during consultation in order to further refine the assumptions. However, 80% of stakeholders either agreed with the assumptions in the evidence assessment or made no comment.

35. Only a small number of respondents questioned whether all relevant costs had been included. One respondent was concerned that the costs of control measures (LEV, RPE etc) had not been included; Paragraphs 81 and 82 explain that control measures required when using substances hazardous to health (including DCM-based paint strippers) are contained within the COSHH Regulations. These regulations require any company using hazardous/dangerous chemicals to assess the risks and put in place safe working practices, including the use of Protective Personal Equipment (PPE) and ventilation as appropriate. As the requirements of COSHH are already in place, these costs cannot therefore be attributed to the costs of specific DCM training required by the derogation.

36. One respondent questioned if the increased labour required for DCM has been considered as although alternatives may take longer to work they can be spread over a wider surface area, freeing up labour time. Paragraphs 119-123 of this report consider this issue and conclude that any potential cost savings will depend on the behavioural response of workers including many factors, such as availability and proximity of other jobs, how easy it is to switch between different jobs, and individual factors such as motivation, being paid by hour or by job. Given these factors, it is not possible to quantify this effect, and no additional information was provided by consultation respondents on which to base an estimate.

37. Finally, respondents from the aerospace industry commented that the evidence assessment does not mention the increased maintenance costs and the additional transport costs if DCM-based strippers are not available for professional use. This report (and the consultation evidence assessment) noted this issue (see paragraphs 138-146) but concluded that these impacts are not proportionate to quantify. As no additional information was provided in response to the consultation on which to base an estimate, no further assessment of this impact can be made.

38. Overall, the respondents to the public consultation confirmed that DCM-based paint strippers can be used safely so long as professionals are trained and competent in the use of proper control measures.

5.3 Option 1: Do nothing

39. Option 1 is our baseline option - it represents the situation that would arise if no action were taken (i.e. if UK does not take up the derogation). The full EU restriction would remain in force, and all 'professional' use of DCM-based paint strippers would continue to be banned.

40. All costs and benefits associated with the 'do nothing' option would happen irrespective of government intervention and therefore, under the baseline, there are no *additional* costs or benefits. Costs and benefits resulting from Option 1 are therefore zero.

5.4 Option 2: UK Government enacts the derogation

5.4.1 Costs

41. The major cost associated with enacting the derogation stems from the requirement on professional users to obtain training, and to sit and pass a test, in order to use DCM-based paint strippers.

42. This cost is difficult to quantify accurately. Under option 2, training providers are free to develop and deliver training in the safe use of DCM-based paint strippers in any format and make this accessible to professional users by whatever means they see fit. As long as the training covers the minimum requirements set out in the restriction text, and professionals achieve a pass mark on the HSE test following the training, they would be permitted to purchase and use DCM-based paint strippers.

43. Training can therefore be delivered in a number of ways, and costs will vary according to delivery method. Training could be classroom based, on the job, remotely via PC (either online or by CD ROM), by interactive DVD, or by a mixture of these and other methods.

44. The costs associated with any of the training methods are non-imposed, as professionals can choose whether to undertake the training and test and hence be permitted to use DCM or not. It should be stressed that costs to painter decorators of going on a training course and completing the test can be assumed lower than the private benefits (primarily cost-savings) of using of DCM-based paint strippers. If this were not the case then painter decorators would not have any incentive to attend the training courses.[6]

5.4.1.1 Professional users affected

45. The new controls on DCM-based paint strippers would affect many different sectors, in particular:

- General painter/decorators;
- Specialist painter/decorators, e.g. heritage maintenance and restoration;
- Conservators, e.g. wood, glass, ceramics, art;
- Aircraft and marine ship building and maintenance; and
- Miscellaneous, e.g. workers engaged in graffiti removal.

46. Training and testing costs to these groups of professionals are analysed below.

5.4.1.2 Costs to Painter decorators

5.4.1.2.1 Number of painter-decorators in the UK

47. According to Annual Population Survey (APS) 2010 data, the estimated number of generalist and specialist painter-decorators represented under Standard Occupational Classification 5323 'Painters and decorators' in the UK is approximately 130,000 professionals.[7]

48. During extensive informal consultation, the DCM-based paint stripper formulating industry have indicated that there are around 5,000 to 10,000 small independent decorators, re-

6 It is conceivable that if the test is – or is perceived to be – difficult, indicated by a low success rate, this could add a degree of uncertainty to the decision of professionals undertaking training, and increase the costs beyond those detailed in this assessment. However, given the general aptitude of professionals and their competence in using chemicals, it is expected that the success rate upon completion of required training would be high, and in any case, re-sit costs should be low.

7 Calculations were made at an earlier date when APS (2010) was the most up-to-date source. We expect painter-decorator numbers to be relatively stable year-to-year, so do not consider it necessary to recalculate these estimates using the most recent APS data.

finishers and coatings removal specialists in the UK, 90% of whom would use DCM generally. These specialist painter-decorators represent a small subsection of all the painter-decorators (the total of 130,000).

49. We use this estimate of 4,500 – 9,000 small independent users of DCM as our minimum and maximum, with a best estimate of 6,750 users. We believe these professionals used DCM as a core aspect of their jobs prior to the restriction and would be likely to undertake training in order to resume using it. We expect that the remaining population of painter decorators would either never use DCM or would voluntarily choose to use other paint strippers and hence not seek training to use DCM based paint strippers.[8]

5.4.1.2.2 Familiarisation and search costs to painter-decorators

50. We assume that those painter decorators who would choose to use DCM as part of their jobs, and thus undertake required training and testing, would need to spend some time familiarising themselves with the fact that they now can do so, as well as searching for a means to complete these requirements.

51. We assume familiarisation and search costs would be one hour for each of the 4,500 to 9,000 painter decorators assumed to be attending training courses and undertaking the test, at a cost of around £13.70 per hour.[9] We expect the majority of this time to be spent searching for a course rather than on familiarisation itself. On this basis, we estimate the total costs of familiarisation and searching to be a one off cost of £92 thousand (with a range of £61 thousand to £123 thousand). We assume these occur in the first year following implementation of the proposal (year zero).

52. There are no familiarisation costs associated with the restriction on the use and sale of DCM based paint strippers as these have already been incurred under the baseline. The above cost relates solely to familiarisation with the fact that the derogation has been enacted and use of DCM based paint strippers is thus permitted once suitable training has been completed.

5.4.1.2.3 Costs of training for painter decorators

53. Training could be delivered in a number of ways. For the purposes of analysis, we distinguish here between 'in-person' classroom-based training and remote learning. It should be stressed that all costs incurred by painter decorators undertaking training and testing are completely voluntary, based upon an individual weighing up the costs of training against the benefits to them of being able to use DCM based paint strippers. Whenever a painter decorator completes a training course and test, they have (at least implicitly) made the decision that the benefits of using DCM based paint strippers outweigh the costs of the training course.

54. The professional would be required to undertake a test developed by HSE at the end of training to validate learning and demonstrate competence in safe use in order to benefit from the derogation. HSE estimate that test would take around 30 minutes to complete, based on time taken to log into the system via a username and password, input user details and then take a test of around 12-15 questions. The most likely delivery format of

8 As discussed in 'Analysis Proportionality' (page 29), it is possible that fewer professionals will choose undertake training following enactment of the derogation, due to the current DCM ban and the costs of complying with the derogation. In this case, total training and testing costs (along with cost savings) would be lower. See Page 29 for further discussion.

9 This is based on the median hourly wage rate of a painter-decorator based on ASHE 2010, SOC 5323, £10.50/hour, grossed up by 30% to reflect non-wage costs, which gives £13.65/hour.

this test is online via PC, administered either at the training venue or at a local test centre. Costs to HSE from developing and hosting the online test are discussed in Section 5.4.1.8.

55. Training providers would be required to register (for free) with HSE. To ensure that the certificate of competence provides evidence of both training *and* competence, professional users would not be able to register with HSE or take the test independently of a training provider. Additionally, in order to mitigate the risks of cheating and fraud, the test would be carried out in the presence of an authorised invigilator. Costs associated with the test are assessed along with each training format below.

Classroom-based training

56. Training could be delivered via colleges, private training companies and other suppliers running separate classes or services aimed at providing training to those who wish to use DCM-based paint strippers. Such services would be likely to be commercially-based and charge a participation fee. The responses received during the informal consultation indicated that under the classroom-based training scenario a painter-decorator could expect to pay a fee of around £120 per training course.[10]

57. The costs could be subsidised or covered by paint-stripper formulators, actors in the supply chain, or other interested parties such as heritage organisations. In the absence of reliable information to inform this analysis and in the interest of proportionality, we have assessed the costs on the basis that the painter-decorators pay for it via training fees. Whilst who ultimately pays or bears the cost of training and testing may be important from a distributional perspective, when considering society as a whole any distributional impacts do not alter the overall cost i.e. £120 per training course. If training is subsidised, it is likely that the uptake would be higher as the cost to painter decorators is lower. This increase in demand has not been quantified, as it is not deemed proportionate to do so for the present analysis.

58. For classroom-based training, it is likely that the professional's training provider would fulfil the role of invigilator at the end of the training course, with the test taken at the training venue. We therefore do not expect this to lead to significant additional costs to training providers. On this basis, we assume that the £120 fee for classroom training includes costs associated with accessing and administering the test.

59. Information received during extensive informal consultation for this assessment indicates that classroom based training could take around 5 hours. This is in addition to the 30 minutes taken to complete the test. We assume workers would undertake training in their working time. Using the assumption applied in paragraph 51, the full economic cost of a painter decorator's time is around £13.70/hour. Therefore, the opportunity cost of time spent undertaking training is approximately £75 per classroom training session.

60. The total cost of classroom-based training per painter-decorator (based on the cost of the training and the time spent doing the training) is therefore expected to be around £195 per training session. This cost is a one off cost at the time of training, and does not recur throughout the appraisal period (i.e. once the training course has been completed the painter decorator does not have to re-train in the future). This cost does not account for any travel costs to the training venue, as this would require information on the likely distance and mode of transport to the venue, and we do not considered it proportionate to undertake this level of analysis.

10 No further information on training fees on likely duration of training was received in response to the formal consultation. However, recent discussions with training providers reinforced that £120 is the expected fee-per-person for this training.

Remote training

61. Remote training could be delivered in a PC-based format, for example via CD ROM or online through an internet browser. Consultation with industry did not include any responses from providers of remote training to inform our analysis. While it is expected that remote training would be somewhat shorter than 'in person' classroom-based training (given that the former is likely to be more condensed and have less scope for participant interaction), the same assumption of 5 hours is adopted as a conservative estimate in the absence of further information. This is in addition to the 30 minutes required for the competence test.

62. The same assumptions regarding opportunity cost as for the classroom-based training scenario have been adopted (a painter-decorator doing the course in their working time at a full economic cost of time of around £13.70/hour). The opportunity cost of time of undertaking remote training is therefore the same - around £75 per painter-decorator.[11]

63. There is also likely to be a fee associated with taking such training. Beyond initial set-up costs (primarily software/web development), remote training via PC should be substantially cheaper to provide than classroom-based training, due to the absence of staff (facilitator) and building costs.[12] However, contrary to classroom-based training, we expect there will additional costs to training providers arising from the need to pay for the use of a local testing centre and invigilator to run the competence test. We expect that remote training providers would pass on these costs to professionals, partly or wholly, via the course fee. In the absence of better information, therefore, we assume the same fee of £120 for remote training.

64. The total expected cost of remote training per painter-decorator (training fee plus cost of time) is around £195. Given the conservative assumptions used on both the duration and cost (fee) of remote training, we consider this most likely to be an overestimate costs to professionals from remote training; however, no information was provided during consultation to refine this assumption.

Proportion of painter-decorators undertaking classroom-based versus remote training

65. It is not possible to know what proportion of painter-decorators would opt for classroom versus remote training until the derogation is established and the market reactions are observable. A number of factors could influence this, not least the relative size of fees for each option. Other factors such as the credibility and quality of the training, the standards for painter-decorators required by their employers or customers, as well as personal preferences for remote versus classroom-based learning would also influence choices. The availability and accessibility of the training will clearly be important; based upon interest expressed from training providers and responses to the consultation, we expect most training, at least in the initial year, to be classroom based.

66. Given that we have assumed the same total costs to professionals under each mode of training, the proportions attending each do not affect the final cost estimates in our analysis, so no further attempt is made to assess this.

11 There would also be additional time costs to professionals undertaking remote training from attending a test centre. As for those attending classroom-based training, we do not consider it proportionate to estimate this cost.

12 This assumes that remote training providers can realise economies of scale by spreading initial set-up costs over a sufficient volume of clients.

Total cost of training and testing to painter-decorators

67. We analyse three scenarios, based on assumptions in paragraph 49. Under the minimum cost scenario, only 4,500 painter decorators undergo training. Under the maximum cost scenario, 9,000 undergo training. For the mid-point (best estimate) scenario, we assume 6,750 painter decorators undergo training. In all three scenarios, all painter-decorators undertaking training sit the HSE test, at a total cost of around £195 each (see paragraph 64).[13]

68. We would expect the training cost to occur over the first 3 years of the appraisal period, after which we expect the demand for training to subside. Most of the existing painter-decorators who wished to use DCM-based paint strippers would have received the training, as indicated by the industry responses to informal consultation.

69. We assume that most of the existing painter-decorators would undergo training in the first year (in the absence of information we have assumed 60% of all painter-decorators would undergo training in the first year). We assume that the remaining 40% would undergo the training in the two subsequent years (20% in year 2 and 20% in year 3 of the appraisal period).[14]

70. Therefore, the majority of training costs to painter-decorators falls in year 1 of the appraisal period (mid-point estimate being around £790 thousand), whilst the cost in year 2 and year 3 is smaller (mid-point estimate of around £260 thousand in each year). This gives a total net present value cost of training to painter-decorators of £1.3 million (mid-point estimate), with the minimum estimate being around £860 thousand and a maximum estimate of around £1.7 million.

5.4.1.3 New painter-decorators

71. Responses to informal consultation indicate that the turnover of staff in the painter-decorator market is around 5% per annum, meaning around 3,000 new painter-decorators enter the market each year.

72. We expect that new entrants to the painter-decorating market would wish to take up the training opportunity. New entrants to the market can be expected to actively seek professional/vocational training, and training in use of DCM-based paint stripping formulations should not be a significant addition to the baseline level of training - it could for example be facilitated through existing courses in construction colleges.

73. Course organisers may incur some cost of preparing the relevant material in terms of time spent as well as re-printing the training packs, etc. However, we expect these one-off costs to be negligible and therefore do not consider it proportionate to assess them further.

5.4.1.4 Cost of training to conservators

74. Conservators are highly skilled professionals who go through initial training to qualify, as well as ongoing training to maintain their skills and knowledge. We assume that any DCM specific training would be included in a routine training course that these professionals

13 It is assumed that each professional sits the test only once i.e. there are no re-sits. Given that professionals are already trained in the safe use of chemicals more generally, it is expected that the success rate upon completion of required training would be high.

14 No additional information was received in response to the formal consultation. However, the strong desire for this training to be made available to facilitate the continued use of DCM adds some weight to the assumption outlined in paragraph 69 that the majority of professionals will undertake training in the first year.

would attend under the baseline scenario, and therefore would be completed at no extra cost.[15]

75. We also assume that new entrants to the market would seek to use DCM-based paint strippers and undergo the necessary training in the same manner as the existing conservators. We similarly expect that costs specifically relating to training in use of DCM-based paint strippers would be insignificant in terms of the overall training requirements for new conservators, and accordingly have not considered these costs further in this analysis.

76. For the reasons above, we also expect that familiarisation with the new derogation requirements will occur as part of routine training, and conservators will not incur search costs as training is already provided, so familiarisation and search costs to this group will be negligible.

5.4.1.5 Cost of training to maritime and aerospace sectors professionals

77. DCM-based paint strippers are important in marine and aerospace uses and difficult to substitute. However, due to the large size of the paint stripping/surface coating removal tasks in these sectors, we assume that little activity takes place outside industrial installations. The present restriction permits the industrial use of DCM-based paint strippers.

78. Those marine and aerospace professionals who wish to use DCM-based paint strippers outside industrial installations would need to undergo the necessary training. These workers are likely to be skilled professionals benefiting from a comprehensive training regime (initial and ongoing) by virtue of the safety critical nature of some aspects of their work. Therefore, we expect training necessary for use of DCM-based paint strippers to be included in a training scheme that these professionals would attend under the baseline scenario, thereby having an additional cost of zero.

79. We assume that new entrants to the market would need to use DCM-based paint strippers if possible and would similarly undergo the necessary training as part of a broader training regime.

80. As with conservators, we expect that familiarisation with the new derogation requirements will occur as part of routine training, and maritime and aerospace professionals will not incur search costs as training is already provided, so familiarisation and search costs to this group will be negligible.

5.4.1.6 Compliance cost to professional users of DCM-based paint strippers

81. Use of DCM-based paint strippers is already covered by the COSHH Regulations, which require that any company using hazardous/dangerous chemicals have to assess risks and put in place safe working practices, including the use of Protective Personal Equipment (PPE) and ventilation as appropriate, and provide training.[16]

82. These requirements are already in place and so do not impose any additional costs to businesses. The only additional requirement of the derogation is for the training to be DCM-specific, the impact of which we have assessed and where possible monetised in the previous sections.

15 This view was supported by one conservator during consultation and was not questioned by any of the other respondents.

16 This existing training requirement is not specific to DCM-based paint strippers use.

5.4.1.7 Familiarisation costs to firms who sell DCM-based paint strippers

83. There would be costs to those firms that sell DCM-based paint strippers to professionals. These firms would have to familiarise themselves with the change to their responsibility. Officials estimate that the manager in each such outlet would spend about 15 minutes doing so at a cost of around £28.50 per hour[17], or around £7.10 per outlet.

84. We estimate based on relevant SIC codes that around 26,000 premises[18] might sell DCM-based paint strippers to professional users, although this may be an overestimate since not all premises under the relevant SIC categories would necessarily sell DCM-based paint strippers. Given a lack of data as to the number of premises that may sell DCM, we use this figure as the best estimate.

85. This results in a total one-off familiarisation cost of approximately £180,000. There may also be a small cost to the firm for each transaction, as suppliers are expected to confirm that eventual use would be by a permitted user (either industrially or by an appropriately trained 'professional'), but it is not proportionate to undertake the level of analysis required to estimate this cost.

86. This non-imposed, voluntary cost (as stocking DCM to sell to professionals if the derogation is taken up is optional to businesses) is relatively small and a one-off cost, so even in the case of a small enterprise it is not likely to have a great effect on competition or entry to the market.

5.4.1.8 Costs to HSE – developing and hosting the online competence test

87. HSE will incur initial set up costs from developing the online test and ongoing hosting and support costs. Set up and hosting of the online test will be provided by the Health and Safety Laboratory (HSL). HSL has provided the following cost estimates for this service (2014 prices):

Table 1 – cost estimates for set up and hosting of online test

Year 1 set up and support costs	**£20,950**
- Software maintenance 3 months at 15 hours per month	£4,950
- Software maintenance 9 months at 8 hours - per month	£7,920
- Project Management/host set up and liaison	£3,080
- Hosting per year	£5,000
Year 2 onwards Annual Support Costs	**£16,440**
- Software maintenance	£11,440
- Hosting	£5,000

17 Median hourly wage rate of a marketing and sales manager (based on ASHE 2010, SOC 1132) £21.95 hour, grossed up by 30% to reflect non-wage costs.

18 Based on IDBR 2010 data, 4752 Retail sale of hardware, paints and glass in specialised stores, SIC:4531 Wholesale trade of motor vehicle parts and accessories, SIC:4673 Wholesale of wood, construction materials and sanitary equipment, SIC: 4675 Wholesale of chemical products.

88. Using the above estimates, and adjusting to 2010 prices using GDP deflators,[19] HSE will incur costs of around £19 thousand in the first year of the appraisal period, followed by recurring costs of around £15 thousand per year. This gives a total of £130 thousand (net present value) over the 10-year appraisal period. As HSE will not be recovering these costs from professionals or training providers, this represents a cost to government, not businesses.

5.4.1.9 Total quantifiable costs

89. The total quantifiable costs to society under this option are estimated to be approximately £1.7 million (mid-point estimate) with a minimum estimate of around £1.2 million and a maximum estimate of around £2.2 million in present value terms over the 10 year appraisal period.

90. This is comprised of £1.3 million training and testing costs to painter-decorators (with a range of £860 thousand to £1.7 million), £90 thousand search and familiarisation costs to painter-decorators (with a range of £60 thousand to £120 thousand), familiarisation costs to sellers of DCM-based paint strippers of £180 thousand, and £130 thousand cost to HSE from setting up and hosting the competence test, in present value terms.

5.4.2 Benefits

5.4.2.1 Cost savings to business

91. The cost savings presented below are the costs avoided by using more cost effective DCM based paint strippers relative to more expensive options.[20]

92. If the derogation is not taken up, professional users would need to continue to use alternatives to DCM-based paint strippers to remove surface coatings where possible, or these activities would have to cease. Alternatives to DCM-based paint strippers to remove surface coatings include alternative chemical agents, heat treatment and/or mechanical means such as scraping, sanding, and blasting. Alternative means of removing surface coatings present different risks and costs.

93. The assessment below considers only the impacts and costs of using alternative chemical strippers, given that data is more readily available and estimation relatively more straightforward than for other non-chemical alternatives. The incremental costs of using these alternatives would be avoided under option 2 if professionals decide to undertake training and testing in order to use DCM-based paint strippers rather than using the alternatives.

94. As discussed below in paragraph 103, we assume that a third of paint stripping work would employ alternative chemical strippers in the absence of DCM-based formulations (i.e. under baseline conditions), with the remainder split between mechanical and heat-based methods. The estimates below therefore represent a partial analysis; estimated benefits would be greater if the analysis accounted for the remaining two-thirds of paint stripping work.[21] We consider this a proportionate approach for two reasons: 1) the permissive and

19 Adjusted to 2010 prices using Treasury GDP Deflators (https://www.gov.uk/government/publications/gdp-deflators-at-market-prices-and-money-gdp-march-2013). For years 2013 and 2014, the calculation uses percentage changes in line with the December 2013 Autumn Statement, as provided in the GDP deflator tables.

20 It may have been possible to estimate the consumer surplus associated with the use of DCM-based paint strippers, the avoided loss of which would be the benefit of the derogation. However, we did not consider it proportionate to gather the data and undertake the analysis required to estimate the demand curve for DCM-based products in order to attain a consumer surplus estimate.

21 As discussed in paragraphs 102 and 148, based on information gathered during informal consultation, we consider the assumption of one-third of DCM-based paint-stripping replaced by chemical alternatives to be

deregulatory nature of the proposal; and 2) the large positive net present value that results from the partial estimate (see paragraph 170), providing a high level of confidence that the proposal results in significant net benefits to society.

5.4.2.1.1 Expected volume of DCM-based paint strippers

95. An EU impact assessment[22] estimated the tonnage of DCM-based paint strippers formulated in Europe in 2005 at between 27,000 and 40,000 tonnes.[23] We have adopted these as minimum and maximum estimates with a mid-point estimate of around 33,000 tonnes.

96. A UK impact assessment[24] conducted in 2008 during negotiation of the EU restriction assumed that 20% of Europe-wide volume would be sold in the UK. This is based on an estimate in an EU Impact Assessment from data provided by European chemicals industry bodies that 24% of paint strippers produced in Europe from 'virgin' DCM manufacture were sold in the UK and Ireland in 2005.[25]

97. Based on this 20% estimate for the UK of the volume of DCM-based paint stripper formulated in the EU around 6,700 tonnes (the mid-point estimate) of DCM-based paint strippers were sold and used in the UK annually before the restriction.

98. The UK impact assessment[26] further assumed that sales of DCM-based paint strippers are evenly distributed between consumer, professional and industrial users, meaning that every year professionals would use around 33% of the total volume.

99. In the absence of further information, we take this assumption and estimate the expected volume of DCM-based paint strippers sold to and used by professional users in the UK prior to restriction to be around 2,200 tonnes per annum. For the purposes of this assessment, we assume that professional users would use the same volume of DCM-based paint stripper following enactment of the derogation. It is possible that due to the costs associated with the requirements of the derogation (training and testing), demand for DCM-based paint strippers would be lower than previously, though we do not consider it proportionate to estimate the size of this effect (see 'Analysis Proportionality' section, Page 30, for further discussion).

5.4.2.1.2 Cost savings from use of DCM-based mixtures versus alternative chemical strippers

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conservative. Additional labour and machinery costs associated with mechanical and heat based methods suggest that these would be confined to a smaller number of applications. If information gathered during consultation enables this assumption to be refined, we will do so for the final assessment.

22 Impact Assessment of Potential Restrictions on the Marketing and Use of Dichloromethane in Paint Strippers, RPA Ltd., 2007, executive summary.

23 This is based on estimated tonnage of DCM used sold for use in paint stripper manufacture in Europe in 2005 (24,000 tonnes) and average DCM-based paint stripper concentration of DCM (in the range of 60-90%). While this data is almost ten years old, it is the best available data. The EU impact assessment indicates that some further decline in DCM paint stripper use may have occurred up to 2007, when the Solvents Emissions Directive 1999/13/EC would be fully implemented. However, no indication of the potential additional level of decline was given, and so the range of 27,000 to 40,000 tonnes used in the present analysis is expected to provide a reasonable estimate of the baseline use of DCM paint strippers.

24 IA of EC Proposal for a Decision of the EP Council relating to restrictions on dichloromethane, p.4.

25 Commission Staff Working Document Accompanying the Proposal for a Decision of The European Parliament and of the Council amending Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (dichloromethane) Impact Assessment report, COM (2008), page 8, table 2.

26 IA of EC Proposal for a Decision of the EP Council relating to restrictions on dichloromethane, p.3.

100. Several research reports undertaken to inform the policy proposals to restrict DCM at EU level considered chemical, as well as mechanical and heat stripping, alternatives. Most chemical alternatives are based on relatively few active ingredients. While there are others, the substances acetone, toluene and methanol (often used in combination), 1-methyl-2-pyrrolidone, dimethyl sulphoxide, and the dibasic esters are the most typical ones used. The product lines and formulations in which these substances are used vary widely and dynamically, making reliable comparative analysis of their costs and efficacy very challenging.

101. The 2007 EU impact assessment (referred to earlier) assumed that 75% of all work carried out by professionals using DCM-based paint strippers could be substituted by alternative means. More recent informal consultation with industry for the present assessment has suggested this figure is around 45%. To reflect the uncertainty around this, 75% is adopted as the high estimate and 45% as the low estimate, with a mid-point estimate of 60%. Applying the mid-point estimate, to the estimated volume of DCM-based paint strippers sold in the UK each year suggests around 1,300 tonnes of DCM-based paint strippers used by professionals would be substituted by alternative means in the UK each year under the restriction (without derogation).

102. Alternative means of paint-stripping include mechanical stripping, heat stripping, and the use of non-DCM formulations. Information gathered during informal consultation suggests that the majority of paint stripping tasks previously carried out using DCM-based products would be undertaken using chemical alternatives. As discussed in paragraph 148, additional labour and machinery costs associated with mechanical and heat based methods suggest that these would be confined to a smaller number of applications. However, in the absence of data, we assume an equal split of alternative means, meaning that a third of paint-stripping work would be carried out by using alternative formulations. We consider this a conservative assumption for chemical alternatives; however, no further information was received in response to the formal consultation to enable us to refine it.

103. Using the above assumption, we expect professionals to have replaced approximately 445 tonnes of DCM-based paint strippers with non-DCM chemical formulations since the restriction came into force. As discussed in paragraph 94, this represents a partial analysis of benefits; we do not estimate the costs (and therefore cost savings) associated with using alternative means of paint stripping for tasks previously undertaken with the remaining two-thirds (890 tonnes) of DCM-formulations, given the difficulty in estimating this.

104. Formulators of DCM-based paint strippers have previously estimated an additional cost to buyers of £9 million per annum, which would result from substituting alternative solvents for DCM in paint strippers, based on unit sales of 3 million litres per annum.[27] This estimate suggests that the average unit price of non-DCM alternatives is £3 per litre more expensive than that of DCM-based formulations.

105. The EU Impact Assessment includes a case study on the professional use of DCM-based paint strippers[28], suggesting a cost of DCM-based paint stripper to the user of 1.5 euro/kg and a cost of DCM-free paint strippers from around 5 euro/kg[29]. Having applied a 2008

27 UK Regulatory Impact Assessment on proposed restrictions on Dichloromethane (DCM) paint Strippers; A paper developed on behalf of a group of UK Methylene Chloride Paint Stripper Formulators, 2008.

28 Commission Staff Working Document Accompanying the Proposal for a Decision of The European Parliament and of the Council amending Council Directive 76/769/EEC on the approximation of the laws, regulations and administrative provisions of the Member States relating to restrictions on the marketing and use of certain dangerous substances and preparations (dichloromethane) Impact Assessment report, COM (2008) 80 final, page 25.

29 We have taken an average of the quoted 3 euro/kg to 8 euro/kg.

exchange rate of 0.796 EUR/GBP[30] and inflated to 2010 prices,[31] a kilo of DCM-based paint stripper costs approximately £1.30/kg, whereas one kilo of alternatives costs around £4.40/kg. This means that non-DCM alternatives cost approximately £3.10 more per kilo to purchase - consistent with the earlier estimated increase in unit price of £3 per litre by DCM-based paint stripper formulators.[32] [33]

106. Based on this assumption and the 445 tonnes of DCM based paint stripper that we expect has been by alternative solvents since the restriction came into force, the estimated cost of substituting DCM-based paint strippers with more expensive alternative formulations is approximately £1.4 million per annum (mid-point estimate). [34]

107. Industry responses received during informal information gathering indicated that due to efficacy and the need to re-apply, it may be necessary to use 2-3 times more of an alternative formulation compared to DCM based paint stripper. HSE has adopted a conservative estimate of 1.5 times more alternative formulation needed to do the same job as a given amount of DCM-based paint stripper.

108. Applying this estimate, the cost in the UK retail market of replacing a third of DCM-based paint strippers use with more expensive alternative formulations is expected to be around £2.4 million[35] per annum (mid-point estimate). This translates to the present value cost of around £20.5 million (with a range of £12.3 million to £30.7 million depending on the amount of DCM based paint stripper that can be substituted by non-DCM alternatives), over the 10 year appraisal period. Avoidance of these costs is a benefit of taking up the derogation.

109. Table 2 below summarises the assumptions and calculations used to derive the best estimate.

Table 2 - Cost savings from use of DCM-based mixtures versus alternative chemical strippers

Assumption/calculation	**Value**
Amount of DCM paint strippers sold each year in the EU	33,350 tonnes
% of total DCM sold each year in the UK	20%
Amount of DCM sold each year in the UK	6,670 tonnes
Proportion of sales - professional use	1/3
Amount of DCM paint strippers used by	**2,223 tonnes**

30 European Central Bank Statistical Data Warehouse – Annual Exchange Rates 2008

31 Adjusted to 2010 prices using Treasury GDP Deflators (https://www.gov.uk/government/publications/gdp-deflators-at-market-prices-and-money-gdp-march-2013).. This makes as assumption that the price of paint strippers has increased in line with general inflation.

32 This makes the assumption that 1 litre of paint stripper is approximately equal to 1 kilo. Based on informal investigations, this assumption is not deemed to be unreasonable.

33 We assume that the relative prices of DCM-based paint strippers and alternatives remain the same specifically that they rise with the general rate of inflation. If the price of alternatives increased faster than DCM-based products or vice-versa, estimates of cost-savings would alter considerably. Unfortunately, no data was available on which to account for any such changes.

34 3.10 £/kg cost difference between the DCM paint strippers and the alternative formulations times 445 tonnes of DCM-based paint strippers used by professionals that could be substituted by alternative formulations.

35 The additional 0.5 times (222 tonnes) of alternative formulation required is valued at the full price of the alternative (£4.40/kg), rather than the difference between DCM-based and alternative strippers (£3.10/kg). This results in an additional cost of approximately £980 thousand. Adding this to the estimate in paragraph 106 of £1.4 million results in the estimate of £2.4 million.

professionals	
% of work done by professional users that could be substituted by alternative means of paint-stripping	60%
work done by professional users that could be substituted by alternative means of paint-stripping	1,334 tonnes
Proportion of this work that could be substituted by using non-DCM formulations	1/3
Work done by professional users that could be substituted by non-DCM chemical formulations	**445 tonnes**
Unit cost of DCM-based paint strippers (2010 prices)	£1.3/kilo
Unit cost of DCM-free paint strippers (2010 prices)	£4.4/kilo
Difference in unit cost	£3.1/kilo
Amount of non-DCM based mixture required to replace DCM based formulation for a given area (factor)	1.5
Costs of using non-DCM alternatives (ongoing)	**£2.4 million**

5.4.2.1.3 Avoiding time and effort costs associated with the use of alternative chemical strippers

110. Factors other than product price per kilo influencing the cost of a paint-stripping task include application rate, number of applications needed, PPE, job size, labour costs, and scaffolding costs.

111. In response to a request for information to inform this assessment, one producer of alternative paint stripping formulations indicated that while the material cost of DCM-based paint strippers is usually lower than alternatives, the applied cost of using a DCM-based product is 'likely to be higher'. Additional costs might be result from the need for training, atmospheric monitoring, PPE, time spent suiting/de-suiting before and after work and protecting surrounding areas, cost of peripheral damage (to unprotected areas) and evacuating the working area.

112. The same respondent indicated that little additional time is necessary for the use of their products, and that additional time and cost savings associated with alternative ways of working result in a cheaper overall cost per task.

113. At the same time, the formulator suggested that there is also a significant cost associated with re-applying DCM-based products, arguing that the high rate of evaporation means DCM-based paint strippers must be re-applied often. The latter claim is however difficult to reconcile with the known properties of DCM.[36]

114. By contrast, formulators of DCM-based products have previously suggested that the unit cost of replacing DCM as a paint stripping solvent should be multiplied by a factor of 18 to reflect the additional costs associated with increased application rates and number of applications.[37]

115. The same formulators suggest further additional costs for operators associated with the likely flammability of substitutes for DCM, which could result in requirements for separate site-storage facilities, restrictions on the total area which may be coated with flammable

36 The small molecular size of DCM enables it to penetrate paint coatings rapidly, whilst its intermediate solvency power leads to swelling of the coatings without dissolving them. Hence the dissolved film blisters and bubbles allowing easy removal without risking re-coating of material as the solvent evaporates.

37 DCM-based paint stripper formulators indicated in early 2008 that their estimated £9,000,000 increased unit price for DCM alternatives should be corrected to £162,000,000 to reflect slower application rates and increased number of applications necessary based on product testing.

product at any one time, fire precautions and restrictions on other trades working in same area.

116. The disparity between reports makes it difficult to establish a clear estimate of volumes and additional time taken for alternative solvents to work to their best efficacy. Sources are, however, in very broad agreement that non-DCM-based paint strippers take longer to work to their greatest efficacy than DCM-based formulations.

117. Time and effort costs associated with the use of alternative chemical strippers would have a different impact on the groups of professionals affected. The impacts are analysed below for the main groups of professionals, such as general painter-decorators, heritage and conservation sector and maritime and aerospace professionals.

118. The negative impacts associated with use of alternative formulations would be avoided if the derogation were enacted, as professional users could use DCM-based paint strippers rather than costlier alternatives.

Avoided time costs of alternative chemical paint strippers: General painting-decorating

119. The full economic cost of every additional hour spent waiting for general paint stripper to work is approximately £13.70, given the hourly wage of painter-decorators.[38]

120. It is not possible to estimate how the longer time taken for the alternative formulations to work to their greatest efficacy transposes into day-to-day business and the actual loss of productivity.

121. This is because there is both too broad a range of alternative formulations with insufficient evidence of their necessary 'dwell' time to reach the full efficacy, and insufficient information on behavioural responses of painter-decorators to longer time needed for the alternative formulations to work. The behavioural response depends on many factors, such as availability and proximity of other jobs, how easy it is to switch between different jobs, and individual factors such as motivation, being paid by hour or by job. An extensive survey would be necessary to establish a more detailed understanding of painter-decorator responses to longer time needed for alternative formulations to work – even so this might not provide an accurate account of behavioural choices and it is not considered proportionate to incorporate this level of detail in this analysis.

122. DCM formulators have previously estimated typical task sizes in refurbishment of local authority housing stock (and by association other 'large scale' professional paint stripping) as 750 m^2, and estimated an impact of approximately £4 million per annum for this sector based on the need for an increased number of applications with non-DCM strippers of higher price, consistent with the known sales into this activity for one formulator.

123. These formulators estimated their market share at 10% of the UK total, suggesting that an overall impact could be as high as £40 million per annum for this sector. These figures are difficult to substantiate and as no data gathered during consultation enabled HSE to provide an estimate of this potential cost, these are not included in the total cost savings figure.

Avoided time costs of alternative chemical paint strippers: Heritage building restoration and maintenance, and conservation of art, glass and ceramics

124. Conservators use DCM-based paint strippers in the restoration and maintenance of heritage buildings, machinery, antique restoration, etc. The issues associated with no derogation being taken up (raised in the previous sections) are also true for the conservation sector. However, sector-specific considerations mean that some impacts of

38 Hourly wage rate of a painter-decorator (based on ASHE 2010, SOC 5323) £10.50/hour, grossed up by 30% to reflect non-wage costs.

the restriction on conservators would be different from those on painter-decorators. These impacts, which are analysed below, would be avoided under the derogation option.

125. Conservation tasks are highly skilled, and as a result, labour costs form a very significant proportion of the overall cost of a task. One conservator indicated that labour costs would typically comprise 90% of the cost of a conservation task. Responses received via dialogue with the sector indicated that a conservator cannot easily switch from one job to another. This would result in a loss of productivity when waiting for the alternative formulation to work (which takes longer compared to using DCM-based paint strippers). Because of this, increased application times and the need for several applications can more than double the cost of a conservation or restoration task.

126. A number of conservators responding to the request for data to inform the present assessment indicated that the market for conservation work could be negatively affected by such an increase, with the owners of heritage objects not being able or willing to meet increased costs of restoration and therefore not choosing to restore or maintain heritage articles.

127. This, combined with small profit margins, could put stress on this specialist sector.

128. Conservators also report that DCM is uniquely suited to certain tasks. DCM-based paint strippers are particularly effective at removing durable coatings without damaging the substrate, which can be very fragile and valuable in heritage applications. [39]

129. Further, a key aspect to conservation/restoration work is the reversibility of repairs. Conservators reported widespread concern that the loss of access to DCM-based strippers would mean that epoxy resin procedures designed to be reversible by the application of DCM would no longer be reversible.

130. It is difficult to quantify the potential costs associated with these aspects of DCM use. The scope of the objects potentially affected is vast, including almost any historical building or object hosting a leaded paint coating (including paintings themselves), and also glass and ceramic objects repaired with epoxy resins, etc.

131. Further, it would not be possible to say what proportion of such objects would be subject to restoration and could be spoilt or damaged by using alternative formulations.

132. A number of factors influence the value of a historical object: its commercial value, the value of generated tourism, and non-use or option values.

133. In order to place a commercial value on a historical object, a survey of those working in conservation would need to be carried out and the estimates of the value of the work would need to be collected, as well as how it would be affected by restriction of DCM. This is complicated by the fact that a lot of heritage is not traded frequently making valuation problematic.

134. The value of generated tourism is represented by the extent to which people are encouraged to visit the UK because of historic assets i.e. the economic activity generated by their existence, which is not reflected in their commercial value/market price.

135. In addition, people may value the preservation of an asset even if they do not plan any direct experience of the object themselves. For example, they may plan to visit a building in future, or think it important that such assets are kept for future generations. This is especially true for culturally significant items and antique/heritage items more generally. This value is intangible and difficult to monetise. It may be possible to measure such non-use/option values through contingent valuation techniques. However, such studies are

39 This view was reinforced during consultation by numerous conservator users, however suppliers of alternative chemical-based paint strippers challenged the view that their products where inferior to DCM for heritage applications.

very costly and involved, and are not considered proportionate for the present assessment.

136. Costs to society of preventing effective coating removal and use of durable surface coatings are difficult to quantify but are expected to be significant if conservators' work could not be permitted under the 'industrial' use. They would be avoided under the derogation option if conservators took up the derogation.

137. There is a possibility that small-scale conservation operations involving DCM-based paint strippers taking place under controlled conditions in workshops equipped for this purpose may be permitted under the existing derogation for 'industrial' use. Alternative DCM-based formulations to paint strippers might also be substituted for the use of paint stripper type mixtures, for example in the case of addressing epoxy-resin repairs.

Avoided time costs of alternative chemical paint strippers: Maritime and aerospace stripping

138. A restriction on DCM-based paint-strippers negatively affects the maritime and aerospace sectors. These effects, analysed below, would be mitigated under the derogation option.

139. The safety critical nature of durable surface coatings in the maritime and aerospace sectors makes use of alternative coatings – which might be susceptible to stripping methods other than DCM-based formulations – less feasible. Use of DCM-based paint strippers in the marine and aerospace industries is therefore less likely to be substituted for alternative formulations than in general painting/decorating.

140. Workers in these sectors are also, in general, specifically skilled and employed by larger companies, and so are more likely to benefit from routine training.

141. A report compiled for HSE in 1994[40] detailed that in the case of aircraft stripping '[in] principle DCM can be eliminated from this process by using physical stripping methods' and went on to describe several 'blasting' methods using a plastic blasting medium, nuts shells, rice hulls, solid carbon dioxide ('dry ice') pellets, wheat starch, baking soda, and water.

142. These alternative techniques each posed advantages, which were not specified, but also disadvantages. The latter included a failure to remove rust, dust exposure, a limited lifetime for the blasting material, heavy energy or water consumption and the risk of pollution, high capital cost, methods being slow or ineffective for some coatings, problem noise and local gas concentrations. They also posed 'unanswered questions' about the mechanical effects on the aircraft and the 'potential for long-term corrosion/structural effects'.

143. While this report is now 19 years old and relates specifically to stripping of aircraft, evidence provided to inform the present analysis suggests similar concerns still apply in the maritime sector, at least:

> 'Certain areas… are trying mechanical means of removal, typically shot-blasting. However, the general consensus is that the latter method is more hazardous as considerable volumes of dust are created requiring strict process controls, ignition/spark-proofed… equipment, PPE, is more labour intensive and the volume of waste is substantially increased by the use of shot blasting materials being contaminated by the material removed.'

40 HSE Specialist Inspector Report 45 Dichloromethane (methylene chloride) exposure and control during paint stripping, Dr RJ Gardner, 1994.

144. It is important to note that the majority of marine and aerospace stripping operations are likely to constitute 'industrial' activity as defined in the restriction text, meaning they would not need the benefit of the derogation to be allowed to continue (given appropriate risk management measures).

145. Maritime and aerospace sector professionals whose use of DCM-based paint strippers does not constitute 'industrial activity' would bear the impacts of the restriction – if the derogation is not taken up, this would result in paint stripping and surface coating removal work by such professional being undertaken by other means or not at all. The impacts on maintaining the structural integrity and safety of ships and aircrafts are not proportionate to quantify.

146. These negative implications would be avoided under the derogation option if the professionals affected by the restriction took up the derogation.

5.4.2.1.4 Non-chemical paint stripping methods

147. Costs and benefits associated with non-chemical alternatives to DCM-based paint strippers will be relevant for some sectors – mainly where other factors render use of non-chemical alternatives feasible.

148. Limiting factors on use of non-chemical alternatives such as heat treatment, blasting or sanding include operational conditions such as work at height or time-limited environments and the need to maintain the integrity of intrinsically valuable or sensitive substrate materials such as in heritage applications or in safety critical applications. Information gathered during consultation suggest that these factors would limit non-chemical paint stripping methods to a relatively small number of paint stripping tasks previously undertaken using DCM-based products.[41]

149. Costs of non-chemical alternatives to DCM-based paint strippers include the use of PPE, capital investment, time taken, and waste management, and negative safety and health impacts resulting from exposure to dust or fumes (notably with the potential for these to contain the hazardous substance lead).

150. While relevant, these costs and benefits associated with use of alternative non-chemical-based paint stripping methods are difficult to monetise without detailed knowledge of the case-by-case applications, the suitability of chemical strippers, and other factors. As discussed in paragraph 94, we do not consider it proportionate to incorporate this level of detail in the present analysis.

5.4.2.2 Impacts on the DCM supply chain

151. Enacting the derogation in question would affect a chain of suppliers of the DCM substance and the DCM-based paint strippers, by allowing their sale to professionals who have undertaken training and testing.

152. Suppliers of the substance DCM to paint stripper formulators are commonly recovery/recycling operators, retrieving post-process DCM from the pharmaceutical and fine chemicals sectors where the solvent properties of DCM are put to other uses.

153. The pharmaceutical and fine chemicals sectors themselves source DCM direct from manufacturers, importers or distributors.

154. Since the restriction came into force, we expect that paint-stripper formulators will have reacted to a fall in demand by professional users and consumers by reducing the volume

41 As an example, a response to the formal consultation indicated that the removal of paint from Ministry of Defence aircraft is now carried out using mechanical stripping techniques rather than DCM based paint stripper.

of DCM-based paint strippers formulated, investing in developing alternative formulations, and establishing appropriate plant for the formulation of these alternatives. Evidence of this can be seen in the recent introduction to the retail market of alternative formulations of paint strippers previously containing DCM.

155. Under the derogation option, we assume that the formulators of the DCM substance and the manufacturers of the DCM-based paint strippers would adjust to an increase in the demand for the DCM-based paint strippers relatively quickly and produce more of the product to meet it. This is because DCM-based paint strippers are relatively easy to produce and do not require substantial upfront investment into machinery and associated processes.

156. Some firms who formulate and sell non-DCM-based paint strippers may observe a decrease in profits under the derogation option comparative to option 1, but this is likely to be offset by those firms who formulate DCM-based paint-strippers observing an increase. We therefore expect the net effect to be small.

5.4.2.3 Health and safety impact

157. Under the present restriction, the sale and use of DCM-based paint strippers by professionals is banned, meaning that occupational exposures of professionals to DCM via paint stripping, and associated risks, are effectively eliminated (assuming perfect compliance).

158. Under the proposed option, where professional users would be required to undergo specific training on the safe use of DCM-based paint-strippers, we also expect any risks to be effectively minimised.

159. The degree to which minimisation of risks is realised depends on worker compliance with health and safety requirements and therefore under option 2 there is some potential for detrimental health effects of use of DCM-based paint strippers (if there is non-compliance with derogation requirements). In any case, evidence suggests that these risks prior to restriction were very low, and we therefore do not expect any material increase in adverse health and safety impacts from the use of DCM-based paint strippers by professionals.[42]

160. Moreover, under the derogation option, adverse health and safety risks associated with the use of alternative paint stripping methods would be avoided. During informal consultation with industry, concern was raised that practices that carry a greater risk to health such as burning, grinding or sanding leaded paint may be employed if DCM-based paint strippers are not available.[43]

161. There may be potential net health and safety benefits from the enactment of the derogation. However, given the level of data required and likely uncertainty around any estimates, we do not consider it proportionate to undertake the level of analysis required to estimate this further.

5.4.2.4 Total quantifiable benefits

42 For example, research by RPA for the European Commission suggests that there was one fatality arising from the professional use of DCM-based paint stripper in the UK between 1930 and 2007, a period of almost 80 years. Risk and Policy Analysts (RPA) 2007. *Impact Assessment of Potential Restrictions on the Marketing and Use of Dichloromethane in Paint Strippers.* Table 3.2, page 44

http://ec.europa.eu/enterprise/sectors/chemicals/files/markrestr/j549_dcm_final_report_en.pdf

43 This view was reinforced during formal consultation with respondents questioning the safety of the chemical alternatives to DCM, specifically suggesting the reformulated "Nitromous", brand leading paint stripper, is now more hazardous now it is a non-DCM-based product. These views were not shared by manufacturers of alternatives to DCM, who represented a minority of responses. They felt their chemicals were intrinsically safer than DCM.

162. Under the option 2 the total quantifiable benefits are expected to be around £2.4 million per annum (best estimate), with a range of £1.4 million to £3.6 million.

163. This translates to a present value benefit of around £20.5 million (best estimate), with a range of £12.3 million to £30.7 million, over the 10 year appraisal period.

164. Importantly, as discussed in paragraph 94, this represents only a partial estimate of benefits (cost savings), since the analysis accounts for only substitution to alternative chemical-based formulations (assumed to represent a third of total paint stripping work previously undertaken using DCM-based products), and not for substitution to non-chemical means (accounting for the remaining two-thirds of work).

165. Additionally, the cost savings presented do not include other cost savings, which were left non-monetised and un-quantified in the present analysis, such as:

- avoiding the cost of increased labour associated with the use of alternative paint strippers (longer time to work and the need of more applications of alternative formulations); or
- risk to or loss of heritage objects.

Both of these costs are potentially large and significant.

166. There is also considerably uncertainty around these estimates, given the number of assumptions on which they are based. This is discussed further in Section 6 'Analysis Proportionality').

5.4.3 Total quantifiable costs and benefits and the net benefit

167. We estimate total quantifiable costs of option 2 to be around £1.7 million (best estimate) with £1.2 million minimum estimate and £2.2 million as a maximum estimate, in present value terms over the 10 year appraisal period.

168. The total quantifiable benefits (cost savings) are estimated to be around £20.5 million (best estimate) with £12.3 million minimum estimate and £30.7 million as a maximum estimate, in present value terms over the 10 year appraisal period.

169. The total quantifiable net benefits are estimated to be around £18.8 million, (best estimate) with £10.1 million as a minimum estimate and £29.4 million as a maximum estimate, in present value terms over the 10 year appraisal period.[44]

170. As discussed previously, this is based on only a partial assessment of benefits. If the omitted cost-savings were accounted for, we expect that the total net benefits would be greater.

171. The details can be found in the table presented below (may not add up due to rounding).

Table 3. Total costs, total benefits and total net benefit for Option 2[45]

	Best Estimate	Minimum Estimate	Maximum Estimate
COSTS (10 Year Net Present Values)			
Costs to industry			

44 To derive the appropriate range for net benefits, the minimum net estimate subtracts the maximum estimate for total costs from the minimum estimate for total benefits, and vice versa for the maximum net estimate.

45 To derive the appropriate range for net benefits, the minimum net estimate subtracts the maximum estimate for total costs from the minimum estimate for total benefits, and vice versa for the maximum net estimate.

Cost of training to painter-decorators	£1,300,000	£860,000	£1,700,000
Costs of familiarisation	£280,000	£250,000	£310,000
Total costs to industry	**£1,600,000**	**£1,100,000**	**£2,000,000**
Total costs to Government (HSE test)	**£130,000**	**£130,000**	**£130,000**
TOTAL COST	**£1,700,000**	**£1,200,000**	**£2,200,000**

BENEFITS(10 Year Net Present Values)			
Cost savings to industry			
Cost savings from not using alternative paint-strippers	£20,500,000	£12,300,000	£30,700,000
Total cost savings to industry	£20,500,000	£12,300,000	£30,700,000
TOTAL BENEFIT	**£20,500,000**	**£12,300,000**	**£30,700,000**

NET BENEFIT (10 Year Net Present Values)			
To Industry	£18,900,000	£10,300,000	£29,600,000
To Government	-£130,000	-£130,000	-£130,000
TOTAL NET BENEFIT	£18,800,000	£10,100,000	£29,400,000

6. ANALYSIS PROPORTIONALITY (RISKS, ASSUMPTIONS, RATIONALE AND EVIDENCE)

172. One of the main uncertainties and sensitivities in our analysis is the behaviour of professionals - whether they take up the derogation in order to use DCM-based paint strippers. The magnitude of estimated benefits, as with costs, is based on the assumption that the same number of users of DCM-based paint strippers as prior to the restriction take advantage of the derogation (and use the substance in the same quantity as before). It is possible that the current ban on professional use, along with the derogation requirements (training and testing), may deter some professionals, leading to a smaller number choosing to take advantage of the arrangements to use DCM than assumed here.

173. However, HSE expect that the cost-effectiveness of DCM-based paint strippers relative to alternatives will mean that the use of DCM formulations by professionals following enactment of the derogation would be very high. As discussed in Section 5.4.2.1.2, we estimate that chemical alternatives cost around £3.10/kilo more than DCM formulations, and require 50% more product for a given area. This means that professional painter decorators would only need to purchase and apply around 40 kilograms of DCM-based paint stripper (replacing around 60 kilograms of alternatives) to cover the estimated £195 costs of training and testing, bearing in mind that there is no requirement for professionals to incur this cost again as long as they remain competent in safe use of DCM. Furthermore, we do not expect any additional training costs under the derogation for professionals that undertake routine training (e.g. conservators, maritime and aerospace professionals) so the costs of the derogation requirements to this group are effectively zero. This strongly suggests that the vast majority of professionals that previously used DCM paint strippers would take advantage of the derogation to continue using them, and that the net benefits and EANCB presented in this assessment would be realised. [46] This is

46 Notwithstanding that the benefits assessment represents only a partial estimate, given that cost savings from those switching from non-chemical alternatives to DCM-based paint strippers have not been included. Additionally,

further supported by responses to the formal consultation (see Section 5.2), where the vast majority of stakeholders (27 out of 30) supported taking up the derogation, providing examples where DCM-based products were not only essential for certain stripping tasks, but in many cases safer than alternative procedures.

174. More generally, it is important to note that the costs to business can be assumed to be lower than the benefits to business (primarily cost-savings), regardless of the number of professionals that elect to take advantage of the derogation (i.e. go on a training course in order use DCM-based paint-strippers). This is because a given number of individuals would voluntarily choose to undertake training, as they believe that the benefits they gain from doing so would outweigh the costs. While professionals would not be making this decision based on perfect information or foresight, the magnitude of cost savings (benefits) relative to training and testing costs, demonstrated by the large BCR, is strongly suggestive of a considerable overall net benefit to society.

175. A key assumption made is that in the absence of derogation (i.e. under baseline conditions), one-third of work previously undertaken with DCM-based paint-strippers would be replaced with non-chemical alternatives. We have only valued this third and contend therefore that monetised cost savings are underestimated. There is a small possibility that if mechanical- or heat-based methods are considerably cheaper than chemical products, a much larger proportion of professionals would switch to these, resulting in lower cost-savings than we have estimated. However, as discussed in paragraph 102, based on information gathered during stakeholder consultation we believe the one-third assumed to switch to chemical alternatives to be conservative and the likely proportion to be greater.

176. Further uncertainty relates to the likely cost of training to painter-decorators. We have adopted estimate of £120 fee per painter decorator for both types of training, based on upon an industry estimate of classroom-based training. If the estimate of training were to increase by 20% (to £144), we would see an increase in total costs to business of 10% (to £1.7 million) under the best estimates for the preferred option. Responses to the formal consultation did not suggest that refinement of this assumption was required.

177. In addition, the type of training professionals are likely to take is also uncertain. As we have assumed the same cost of £120 for both classroom- and remote-based training, we have not needed to make assumptions about the specific types of training professionals will choose. However, based on stakeholders responses, we expect that the majority of professionals will choose classroom based training. Where remote based training is cheaper than classroom based and a greater proportion of professionals opt to train remotely, total training costs will be lower than estimated here.

178. We have identified most of the affected sectors as indicated in the EU Risk Assessment Report. We have received responses that informed our analysis from most of the sectors, except for the DCM-based paint -strippers used in the graffiti removal sector. Our understanding of the effect of the restriction and derogation for this sector is therefore limited.

179. The assumptions made regarding the behaviour of conservators and aerospace and marine professionals have been informed by industry responses received during extensive information gathering exercise and formal consultation.

7. DIRECT COSTS AND BENEFITS TO BUSINESS (following OITO methodology)

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we would expect those professionals that previously used DCM in the lowest volume to be most likely not to take up the derogation, as these would perceive the lowest benefit (cost savings) from doing so. The effect on total DCM use (and as a consequence, cost savings) would therefore be limited.

180. Taking the rounded figures in Table 1 (costs and cost savings to industry), Policy Option 2 offers a Best Estimate of Costs and Savings to business as follows:

Costs	£1,600,000
Cost Savings	£20,500,000
Net Cost Savings	£18,900,000

181. These total Costs and Savings are calculated over a 10 year period resulting in an Equivalent Annual Net Saving to Business of £1.87 million.

182. This deregulatory measure is out of scope of One-In-Two-Out because the reduction in regulatory burdens is as a result of a reduction in EU obligations. 'Outs' can only be sourced from the removal of 'gold-plating' of EU legislation from an existing regulation, or from a voluntary curtailment of an existing derogation.

8. WIDER IMPACTS

8.1 Competition Impact

183. Under option 2, the proposal would establish an open market for training provision, promoting competition between training providers who would have incentives to find the best training format (remote, classroom-based, other) to meet the preferences of the professionals seeking the training.

184. We do not expect adverse competition impacts for manufacturers or distributers of DCM-based paint strippers. Changes under the derogation are permissive, meaning that retailers can elect to sell DCM-based paint strippers if they perceive a net benefit from doing so. We expect some positive effect on competition in the market for paint strippers, as the number of options for paint-stripping tasks available to professions is increased.

8.2 Small Firms Impact

185. A small and micro business assessment is not required given that this is a Fast Track (deregulatory) measure.

186. A significant proportion of the affected sectors are thought to be SMEs. This is true for the painter-decorators sector (which includes general painter-decorators as well as specialists) as well as the conservation sector. The cost savings of the derogation would therefore apply disproportionately to the benefit of SMEs.

187. Costs of DCM-specific training (comprised of fees and the opportunity cost of time) would be fixed per individual undertaking the training. These would therefore be born disproportionately by a smaller company compared to a larger one and SME employees might find it more difficult to take time off work to undergo the necessary training.

188. However, under the proposal, professionals would have freedom to choose the mode of training most tailored to their needs, giving more flexibility to professionals working in SMEs.

9. SUMMARY AND PREFERRED OPTION WITH DESCRIPTION OF IMPLEMENTATION PLAN

189. Option 1, do nothing, is our baseline and has no monetised cost or benefit. The non-monetised costs to society of loss of DCM-based paint strippers are significant, with particularly negative impacts identified for SMEs and the heritage sector in terms of lost revenue and lost future access to culturally significant heritage artefacts.

190. Option 2, to take up the derogation by requiring professionals to undergo training and complete a test, is the preferred option.

191. The total quantifiable net benefit is estimated to be around £18.8 million (best estimate), with £10.1 million as the minimum estimate and £29.4 million as the maximum estimate, in present value terms over the 10 year appraisal period.

192. The potential non-monetised benefits for society in terms of improved health and safety outcomes from properly managed use of DCM-based paint strippers over alternatives and secured future access to heritage artefacts, are considered worthwhile.

193. Government intend to implement the preferred derogation option by means of an amendment to the REACH Enforcement Regulations 2008 (SI 2008/2852). A training syllabus will then be developed, in partnership with industry stakeholders including trade associations such as the Painter and Decorators Association (PDA) and training bodies such as Construction skills, on the essential elements of training that professionals wishing to use DCM-based paint-stripper are required to undertake. Further guidance will also be provided for HSE inspectors (publicly available on the HSE website) to set out the key requirements of the training and competence system outlined in the legal amendment. Finally, HSE is working with various training bodies to ensure training courses that follow an appropriate syllabus are available for professionals who wish to use DCM again.