Textile Services Association Good Practice Guidance

PPE Workwear Rental

Selection, Application and Management Control

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Foreword

‘Personal protective equipment (PPE) are products that the user can wear or hold, in order to be protected against hazards either at home, at work or whilst engaging in leisure activities. Statistics on fatal and major work accidents underline the importance of protection and prevention, for which personal protective equipment plays an important role.’

The Textile Services Association (TSA) produced a guidance document in 2007 to give both technical advice to its members and to reflect the responsibilities of providing a PPE Workwear rental service to customers, based upon the original 1992 PPE directive.

Under EU legislation, the original PPE Directive of 1992 has been updated to the new PPE Regulation 2016/425 which became effective in April 2018 with an allowable transition period for implementation. Whilst the regulation may be considered to apply to Manufacturers only, Providers, Employers and Wearers must all be made aware of the key changes and how these impact on their responsibilities. This guide outlines the key changes, but also retains some of the technical advice from the previous guide which remains relevant.

Textile Services Rental companies need to educate and train sales personnel and all other relevant staff on the proper selection, application and management control of workwear contracts to ensure compliance with the PPE Regulations. This revised Guide provides an appreciation of the responsibilities of PPE Manufacturers and Suppliers/Distributors, Textile Services Rental providers and their Customers who are the Employers of PPE Wearers.

It defines the key requirements for supplying, cleaning and maintaining PPE Workwear so that it functions correctly and safely and has clear quality assurance traceability. Under most circumstances, Textile Services company providing a PPE workwear rental service is defined as a distributor; however, in certain circumstances, would also be categorised as a manufacturer. .

Executive Summary

Textile Services companies should educate and train sales personnel and other staff in the proper selection, application and management/control of workwear contracts, to ensure compliance with the PPE Regulations. This Guide provides an appreciation of the responsibilities of PPE manufacturers and suppliers/distributors, textile services rental providers and their customers, the Employers of PPE wearers. The emphasis is on how to comply with the regulations and succeed in the business of providing the service, rather than avoid the market because of its complexity. This Guide defines the responsibilities of a textile services rental company in the two key areas of supplying and processing of a PPE rental contract.

Supplying the service: **A review of EU Directives, CE marking and UK regulations and legal requirements is followed by an assessment of their application to PPE rental. Guidance is given on determining the fitness for purpose of the garment in service, managing maintenance of the garment and establishing full traceability.**

Processing: **Guidance is given on developing practical, structured methods for compliance with the Regulations and the demonstration of compliance**

The legislation covering the aspect of PPE workwear rental is the PPE Regulation 2016/425, which became effective in April 2018 with an allowable transition period for implementation.

CONTENTS

Effective laundry operations, Garment inspection and Repair and replacing of non-conforming parts of the garment

Building a traceable history of use

Key to the whole operation is a system for validating every aspect of laundry processing and the service.

A PPE tracking system will be necessary to tag individual items for identification from the point of injection into a contract (to individual wearer level) and through repeated returns to the laundry for processing. This will allow a complete service history to be built up for the garment from how often it is returned (especially important for PPE used in dirty environments), to rewash counts, repair details and subsequent sorting back into contracts, again to individual wearers level.

Processing

At the outset, machines for processing PPE must be validated to show that they are operating correctly. Afterwards the PPE and the process, which has been designed for it, must be validated to show that the PPE can retain its protective attributes for the number of processing cycles claimed by manufacturer, for the soiling levels anticipated in the contract. The key process variables in the specification are then identified for monitoring processing between validations e.g. soiling classification, load weight, main wash temperature and time, detergent and supplies concentrations.

Monitoring and continuing PPE attributes and functionality.

The testing of attributes will be problematical in some cases. This will arise because effectiveness of PPE will depend very much on its history of use. Testing individual PPE will NOT always serve as a good predictor or the performance of other PPE in the contract. The situation is exacerbated where a destructive test method, e.g. FR testing is required; the tested article can neither be returned to service nor provide information about other articles. In this instance alternative verification will be needed. This would reasonably include the product and documentation audit trail from manufacture and processing of the fabric, making-up and product certification, proper assessment of the application of use, education and training of the Employer and wearer, and tracking of service history in laundering and wear (frequency of return, rewashes, repairs etc.)

SETTING UP A VALIDATED AND FULLY TRACEABLE PROCESSING SYSTEM

FIRST STEPS

The validation and monitoring of a process are actually 'points along the way' in a quality assured system. The actual QA system should start with the representative at the Employer's, with answers to the following considerations (discussed in Annex B):

a) The (H&S) assessment of the wearer's job function
b) The selection of the appropriate PPE
c) The frequency of change matched to
d) The anticipated soiling levels in respect of
e) The manufacturer's processing guidelines for maintaining PPE attributes

PROCESS DESIGN - REQUIREMENTS

The manager in charge of processing now has the necessary basic information to begin discussions about the processing design with suppliers e.g.

a) Detergent suppliers, who may have undertaken responsibility for wash processes
b) Washing, drying and finishing machinery suppliers e.g. heat sensitive garments, fabrics or sensitive adornments are to be processed
c) ID suppliers to ensure the design of a fully automated system for logging PPE in on reception, tracking through each stage of the laundry process (including condemned items, new injections, re-issues, repairs, rewash), and packing out and invoicing.

Process Design – Specification and Validation

The pre-design discussions will result in the writing up of a design specification which must then be validated to show that the process will restore the PPE to use for its intended purpose for the number of processes approved by the manufacturer. Of course, the fit of the PPE and its aesthetic properties must also be maintained.

Validation is the final phase of the design and a QA system should require that validation procedures and results are kept as part of the documented and auditable record. The design specification and validation process should identify process points, procedures and parameters (key performance indicators), which must be monitored and linked to each PPE item in each batch processed. Monitoring results from each processing stage must be assessed for compliance before the batch is released to the subsequent stage. Non-compliant batches must be isolated and dealt with by agreed procedures e.g. reprocessed from the beginning, rewashed etc.

Process monitoring results should also be reviewed at a frequency based on historical experience. This may be half daily to begin with and, if no problems are indicated, may be extended to longer periods. If the number of non-compliances increases the frequency of review must be increased. The design and validation specification should

contain limits for the key performance indicators) e.g. main wash temperature 75±3C. Graphing of key indicators will show trends in the processing which should be addressed before non-compliance occurs.

Monitoring equipment e.g. thermocouples should be recalibrated at agreed intervals to ensure that recorded data is accurate and correct decisions may be taken.

Any changes to processing, planned or brought on by immediate events, must be considered for impact on compliance and may result in the need for isolation of the affected batches and re-validation. Re-validation will be needed at intervals in any case. In the first instance caution is required, but again as an historical record is built up, re-validation frequencies can be readjusted.

There is a clear hierarchy of validation that is more easily explained by considering a new installation, but which is equally applicable to existing operations, namely:

Machines - type tests

The machine designer and manufacturer should supply information about the machine specification and performance under test conditions, e.g. utilities consumption, production rates to a given set of conditions, such as moisture retention, etc. There are international standards that set out procedures for machine type tests for laundry equipment. (ISO 9398 and ISO 10472 series)

Machines - installation tests

The supplier must check that all equipment is assembled and connected correctly, e.g. motors are turning in the right directions, signal transfer between sub systems are sent, received and acted upon correctly, all instruments are calibrated.

Process - design, specification, validation

Experience of machines, textiles and detergents, together with discussions with suppliers as mentioned above, will indicate the starting point for the design of a process based on specific types and levels of soiling and the intended use of the textile. Planned variation of the process variables, and the effect this has on process parameters will lead to an optimum process that may then be specified in writing.

Monitoring - recording and inspection of data

To ensure that the process remains within specification between validation procedures, key performance indicators should be routix`nely monitored and recorded as a permanent record (or retained for an agreed period). This data must also be inspected routinely for trends that could lead to the process going out of specification. A procedure must be in place to identify, compensate and report on adverse trends and the taking of corrective action.

Re-validation

Periodically a re-validation must be undertaken which will involve steps (c) and (d) and usually will require parts of (b) to be checked also.

Staff training

Product quality depends largely on the decisions made by staff and clearly their continuous training and motivation is very important.

Quality Assurance - Procedure

Any rental contract may require that the quality of the processed textiles is monitored against the specification of the customer. This step is an obligatory requirement for the supply of PPE, certainly as far as the PPE attributes are concerned. Those engaged in the processing of workwear for the food industry are aware that bio-contaminated garments must be processed as quickly as possible to avoid the growth of micro-organisms in a warm, damp environment inside a laundry bag. There is a direct analogy for PPE.

Sorting and classification

The process of monitoring should start with the reception of the PPE item in the laundry. It should be logged in to the ID system, sorted and classified soon after arrival. Whilst it may be anticipated that the majority of items in a contract will be batched and weighed together for washing, there is a major opportunity, provided by the inspection, to detect and isolate PPE with a higher degree of soiling than expected. It is possible, and even probable, that this work will not be restored to the desired condition after cleaning. If the maximum allowable treatment is already being given, rewash with the same process probably will not restore it and a more severe treatment may not be given without shortening the life of the article, to the point of seriously affecting the PPE attribute. Documented and recorded procedures for rewash must be used where this practice is followed.

Rewash, repair, condemning

For most workwear processing, garments are inspected for staining, repairs or rejection after the tunnel finisher or at the end of the dry cleaning cycle. Items under the three categories above are separated off from the flow line and their computer record changed accordingly. The majority of items then pass on to be sorted into contracts etc. PPE needs to be similarly treated at an appropriate point in the flow line. Items returning from rewash or repair, together with new injections need to have their computer records amended as they pass through the same inspection point.

PPE attributes

Testing for PPE attributes may be considered to fall into two types – non-destructive and destructive.

Hi-vis PPE can be non-destructively monitored for reflectance and colour using simple comparator methods specified by the manufacturers. The results can be added to the PPE history in the garment database and, which will also pass or fail the item, again amending its record accordingly and even including it on the invoice.

For resistance to chemical splash, monitoring may be non-destructive or destructive depending on the nature of the chemical and the composition of the PPE. In either case it may be a useful idea to include a requirement on the user to report incidents of chemical splash.

For items which remain undamaged when tested with specific chemicals the ID system may be programmed to flag up after a specified number of washes when the item may be removed from the flow line and measured using the appropriate test method.

For cases where the PPE will be destroyed by the test, and this applies in particular for protection against heat, flame and molten metal splash, alternative means of examination are needed. The FR properties of a PPE may not actually be degraded, by wear and processing *per se*, but the PPE might still not offer sufficient protection because the soiling level retained on the item after laundering contributes significantly to the fire load. The soiling may be more than the maximum process can remove or the process itself might have been insufficient.

How may an alternative scheme work for FR PPE which cannot be tested without destroying the item?

1. There will be a paper trail from the fabric manufacturer, through the maker-up and supplier which will show the traceability of the FR properties of the PPE.
2. The textile rental company representative should have documented the discussions with the Employer for the selection, installation and training of staff and wearers.
3. The processing should have been carried out according to the process design specification, which had been validated and properly monitored.
4. This may include an inspection during sorting to assess the soiling level (compared to, for example, photographs of acceptable soiling levels).
5. Inspection at the end of processing will assess finished appearance in terms of soil and stain removal in the same way. Together with an assessment of the state of repair this will give a good qualitative measure of the fitness for purpose.

What else can be done to check soiling level removal? The process agreed between the PPE manufacturer, the detergent supplier and the laundry can be assessed using artificially soiled test pieces. These are cotton or polyester/cotton fabric swatches which have been reproducibly impregnated with different types of soiling designed to just defeat even the most severe wash process. The swatches start off dark and get progressively lighter as the wash process they are given becomes more severe. The lightening can be measured using an appropriate reflectance meter.

Experimentation with the test pieces with the agreed wash process will give a base line expectation for the performance of the wash process in terms of improved reflectance. Further experimentation would allow an incremental range of soiled PPE to be

processed and the final outcome to be assessed. The point at which the processed PPE is just acceptable will correspond to the most soiled PPE that the process can handle. These PPE would serve as the basis for the QA photographs to be used in sorting and at final inspection.

Test Methods for PPE

The following table defines the test methods most relevant to PPE Workwear.
This is for information only, as generally the garment manufacturer should be consulted on any issue where testing to the required standard may be required.

Standard	Title	Hazard				
		Heat etc.	Static	Chem splash	Hi-Vis	Other
BS EN 340	Protective Clothing: General requirements	★	★	★	★	★
DD ENV 342	Protective Clothing: Ensembles for protection against cold					★
DD ENV 343	Protective Clothing: Protection against foul weather					★
BS EN 348	Protective Clothing: Determination of behaviour of materials on impact of small splashes of molten metal	★				
BS EN 366	Protective Clothing: Protection against heat and fire – Method of test: evaluation of materials and material assemblies when exposed to a source of radiant heat	★				
BS EN 367	Protective Clothing: Protection against heat and fire – Method of determining heat transmission on exposure to flame	★				
BS EN 368	Protective Clothing: Protection against liquid chemicals – Test method: resistance of materials to penetration by liquids			★		
BS EN 369	Protective Clothing: Protection against liquid chemicals – Test method: resistance of materials to penetration by liquids			★		
BS EN 373	Protective Clothing: Assessment of resistance of materials to molten metal splash	★				

BS EN 463	Protective Clothing: Protection against liquid chemicals – Test method: determination of resistance to penetration by a jet of liquid – jet test			★		
BS EN 470-1	Protective clothing for use in welding and allied processes – General requirements	★				
BS EN 471: 2003	Specification for high visibility warning clothing				★	
BS EN 530	Abrasion resistance of protective clothing material – Test methods					★
BS EN 531	Protective clothing: for workers exposed to heat, excluding firefighters' and welders' clothing	★				
BS EN 532	Protective Clothing: Protection against heat and flame – Test method for limited flame spread	★				
BS EN 533	Protective Clothing: Protection against heat and flame – Limited flame spread materials and material assemblies	★				
BS EN 1149-1	Protective Clothing: Electrostatic properties – Surface resistivity (test methods and requirements)		★			
prEN 13034	Protective clothing against liquid chemicals – Performance requirements for chemical protective suits offering limited performance against liquid chemicals (type 6 equipment)			★		

Choosing the Product and End-user Legal Obligations

Summary
The Manufacturer of the PPE is legally responsible for supplying information on its care and maintenance. This should include information on the circumstances which could lead to a reduction in the protective attributes of the PPE i.e. its fitness for purpose. This said, the manufacturer will not have prior knowledge of the soiling characteristics and frequency of change in a particular application or contract in which the PPE will be used.

The textile rental company should discuss the manufacturer's information with the Employer and explain restrictions on the use or cycle of use. Additionally, the rental company should discuss the requirements of particular PPE with its own suppliers, who must be made aware of any restrictions in the processing of a PPE item in order to preserve its protective attributes e.g. detergent suppliers who design wash processes for the laundry.

The service should include an auditable QA scheme, which assures that all aspects of the service first meets, then continues to meet, the application.

The customer (Employer) have the legal obligation to carry out their own hazard and risk assessment, but may or may not be able or nor have the expertise to select the correct PPE for the tasks of his work force. It is therefore essential that sales staff can offer help and accurate advice to the customer. This might range from provision of appropriate literature to joint meetings with suppliers.. The reasons for this are:

a) The rental operator ought not to rely on the declared expertise of the customer
b) There may well be further selling opportunities as a result of better understanding the customer's business

It is also essential that the Employer and PPE wearers have a full appreciation of the design, use and application of the PPE and must be aware of the consequences of non-compliance with the Regulations.
The change in Category definition under the new regulations is also explained.

Specification and Installation of a PPE Contract

Principal PPE types and their attributes

PPE with the following primary safety attributes makes up the majority of the workwear products offered by textile rental companies and their performance is governed by the designated standards. The workwear manufacturer is responsible for ensuring that the fabric and the garment have been so constructed as to comply with the standard, would pass any relevant test procedure and thus affixing an approved CE mark to indicate compliance.

- ISO 11611 Welding
- ISO 11612 Heat & Flame
- EN 13034 Chemical Splash
- ISO 20471 High Visibility
- IEC 61482 Electric Arc (UV)
- EN 1149 Electro-static

The following are examples of functionality and potential issues which may arise in processing. These may be shared with the employer to assist in advising against home washing:

Example; Flame retardant (FR) workwear e.g. firefighters' turnout coats, cotton, polyester/cotton. The fabric may be treated to render it Flame Retardant or as in the case of Nomex, have inherent properties.

Types of exposure

a) Protective clothing for use in welding and allied processes (BS EN 470-1:1995)

These products are intended to protect against *small* metal droplets and *accidental* contact with igniting flames. Garment design is addressed in the standard. Operators are *strongly* advised to refer to the TSA guidance document on possible UV exposure to welders wearing a holed or worn thin PPE garment whilst undertaking all forms of arc- welding.

a) Protective clothing for workers exposed to heat (BS EN 531:1995)

Applies to PPE worn by employees who *may* be exposed to heat in contrast to welders, who would *probably* be exposed to heat and spatter. All fabrics must show resistance to flame spread and at least one of the following properties:

i) Convective heat: BS EN 367 defines performance levels for Heat Transfer Index (HDI)

ii) Radiant heat: BS EN 366 defines performance levels for heat transfer levels

iii) Molten aluminium splash: BS EN 373 defines performance levels for molten aluminium splash index

iv) Molten iron splash: BS EN 373 defines performance levels for molten iron splash index

Garment design detail in respect of openings, fastening, pockets, etc is critical for PPE intended for protection against molten aluminium and iron splash. The wearer must be fully trained in how to wear the PPE and the need for the correct use of complementary PPE.

N.B. Possible causes of failure due to processing (for information)

All FR PPE will be subject to failure if:

a) the manufacturer’s care instructions are not adhered to e.g. wrong type of detergents and/or bleaches are used and

b) the PPE becomes too soiled for the recommended wash procedure to cope with. The residual soiling will add to the fuel load during an incident and this may exceed the ability of the FR system to protect the fabric (and the wearer).

Example; Chemical resistant workwear e.g. coveralls for protection against the light splash of chemicals.

Types of exposure:

BS EN 13034 describes methods to assess the protection against acid, alkali, oil and alcohol. Fabrics are classified for repellence and penetration and must exceed highest performance level requirements for at least one of the chemicals. Garment design shall ensure that there are no features that would catch or trap liquid.

Common reasons for failure in laundering this PPE are a) residual soiling (level too high for the process or incorrect processing), b) inadequate rinsing, leaving detergent on the fabric to aid wetting by the chemical splash or c) wrong detergent leading to inadequate rinsing.
If there is normally a required re-proofing frequency within the garment life then the controls and process specification must be followed to ensure the chemical repellent properties are maintained.

Example; High visibility/conspicuity workwear**:** fabrics and reflective adornments e.g. coveralls for use offshore oil rigs, railway workers, road workers

Types of exposure

BSEN 471 specifies three classes of conspicuousness (the minimum areas of luminance provided by the base colour of the garment to make it stand out against its surroundings), with Class 3 being the highest; and two classes of retro-reflective performance of the strips (Class 2, the more visible).

It is the Employer's duty to decide which is the most appropriate combination e.g. the balance between conspicuousness and reflectance will be affected by the level of light in the work environment; the choice of colour will depend on the surroundings.
The PPE Manufacturer and Service provider can provide expertise in making this decision.

Obviously, any cause of loss of conspicuousness or reflectance will reduce the safety attributes of this PPE. This includes failure to remove soiling (poor processing, excessive soiling for the recommended processing) such that it masks the attribute, and damage to the article, particularly the retro-reflective strips. These are highly susceptible to a) mechanical action and abrasion, alkalinity and pH in the wash, and drying temperature. The correct reflective strip designed to withstand such conditions must be used for the application.

Categories of PPE – Redefined in the new Regulations

PPE must be tested, certified to a PPE category, CE marked and labelled with specified information BEFORE it may be placed on the market. The testing and certifying body shall be an approved test house in one of the EU partner laboratories. PPE so certified may be offered for sale anywhere in the EU.
A more extensive list of the common PPE test methods, to that provided in the previous section.

The manufacturer (or the authorised representative in the EC) has the responsibility of not only deciding if his product is covered by the Directive, but also into which category it falls.
The Risk Categories for PPE are defined in Annex 1 of the Directive, available via the link below. The exact definition for Categories I, II and III is given along with examples for all forms of PPE.

https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R0425

Category I PPE

Category I PPE is defined as being that required to protect against minimal risks, where the designer assumes that the user is capable of self-assessing the level of protection required.

Important note:

Such examples for workwear may include the following, but care should be taken not to 'over specify' normal workwear as being PPE when it is just an over-garment, both in its design and application.

a) Superficial mechanical injury
b) Contact with cleaning materials of weak action or prolonged contact with water
c) Contact with hot surfaces not exceeding 50℃
d) Atmospheric conditions that are not of an extreme nature

Category III PPE

Category III PPE is defined as being that required to protect against dangers that may cause very serious consequences such as death or irreversible damage to health, the immediate effects of which the designer assumes that the user cannot identify in sufficient time and thus requires protection.
All the types of PPE workwear identified in section 5 of this guide fall into Category III.

Category II PPE

Category II PPE is defined as being all types of PPE not covered by Category I or Category III.

Other Important Attributes/Issues for Consideration in the Selection of fabrics and Garments

Fabric and garment design are important to ensure that the product is fit for purpose in each individual application.

Physical properties of fabrics:
Factors affecting comfort, wear life and cleanability.

Special finishes:
E.g. soil resistant finishes – whilst these may reduce soiling potential and thereby residual soiling, care must be taken that they do not compromise other safety attributes.

Garment design:
Pockets openings, fastings and closures, soil and liquid shedding features etc.

IN-SERVICE PROBLEMS

There are a number of on-going issues with workwear which cause particular problems of compliance for PPE. The list given below is not exhaustive and the means to remove or reduce these problems has been discussed in the various sections of this Guide.

- Garment sizing and shrinkage, especially for natural fibre workwear, makes compliance with the PPE Directive occasionally problematical.
- Overtime degradation over its working life
- Continuity protection provided when garments are lost/condemned or withdrawn from service
- Incorrect use of emblems.
- Inadequate repairs practices (FR garments with non-FR thread)
- Abuse of garments – use for purposes other than intended and unauthorised modifications (cutting the sleeves off)
- Unintentional damage caused by home washing
- Garments being used that are damaged (not very evidently) during the normal course of use. (after a fire event in which the wearer was protected) – the wearer's duty of care to declare certain level of exposure. Wearers who do not control their own garments correctly such as uneven use of garment sets.

This evaluation would require input primarily from the Employer, but the rental company must ultimately agree to providing the service to specification. The Wearer must also agree to accept the findings of the evaluation and to undertake all subsequent aspects of the job function as specified and trained.
The selection and installation of PPE workwear requires a systematic approach, though no single written procedure will satisfy completely all company strategies or individual requirements. The purpose here is to provide a useful approach by highlighting the key points that need to be considered.

What is the Application Profile (Wearer's Job Function)?

The first question to ask in opening discussions on ***any*** workwear contract:

"Has the Employer carried out a Health and Safety Hazard and Risk Assessment of his/her premises and of the different job functions as required by law in the Health & Safety at Work Act 1974 and the Management of Health and Safety Regulations 1999?"

If the answer is 'No' the need for these assessments should be explained and help given as appropriate if the Employer is unsure about how to proceed. (See the TSA's Health, Safety and Environment Management Guidelines)

If the answer is 'yes' the follow-up question is

"Was an assessment under the COSHH Regulations indicated (including lead and asbestos) and, if so, has one been completed?"

If no assessment has been done or the customer cannot show satisfactory documentation, the textile rental company representative should urge the customer to do so and based on the results of those assessments, provide product recommendations.

a) What is the working environment like? E.g. cold, hot, dusty
b) Are hazardous substances in use? (COSHH) If present, how are these controlled? Is there a residual risk which requires the use of PPE?Are there indications that the wearer will have a main requirement for PPE?

N.B. it is reasonable to expect the textile rental company representative to be knowledgeable about the legal obligations of both the customer and their rental company as a supplier/distributor.

c) What other minor, but significant, activities are undertaken which might require ancillary PPE? And how do these articles interact with the garments being specified.
d) Is the wearer active in a number of tasks which may be served by the same PPE garment or does he/she require alternative wear, even non-PPE?

Primary requirements of the PPE

a) Environment, cold, heat, foul weather?
b) Material handling?
c) Heat/flame requiring FR PPE?
d) Casual chemical splash?
e) High visibility/conspicuity?

Secondary attributes which may be required

a) Identity: To distinguish seniority? Colour coding by work areas?
b) Corporate identity: External? Internal to the customer?

Servicing Needs

What do the answers to the preceding questions reveal about -

a) Likely composition required of fabrics?
b) Mix of fabrics in the garment?
c) Design and styling needed?
d) Cleansing severity and frequency
e) Frequency of change and number of garments per wearer?
f) Pool (not realistic for most PPE) or individual garment issue?
g) PPE life and contract duration?

Previous PPE History

Don’t miss the chance to benefit from the Employer’s previous experience.

a) What experiences has the customer already gained with different fabrics/garment styles?
b) Was the previous colour, style and cleaning satisfactory?
c) Were any special needs identified in certain job functions?

Selection and Marking Up

Is there a product in the textile rental company's/supplier's certificated PPE range that will satisfy the requirement for

a) Fabric weight?
b) Primary PPE attribute?
c) Secondary attributes?
d) Strength and durability?
e) Blend and construction?
f) Colour?
g) Finish?
h) Cleaning and type and level of soiling expected, can it be processed satisfactorily and economically – ask the processing department?
i) Consistency of corporate image across the range which might be supplied?
j) Colour combinations (colour bleed)?
k) Garment style?
l) Are all sizes available in the chosen styles?
m) Requirements for emblems/labels; adhesive, embroidered. Be cautious of size, process impact, colour bleed, etc.

Installation

In preparing for the installation of a contract two other important areas should be addressed by the textile rental company's QA system:

a) If garments are already in use, are the sizes correct?
b) Will replacements come from the same supplier, in the same fabric style and colour?
c) If sizing sets are in use, is their initial and progressive shrinkage in washing and finishing known and acceptable?
d) Can the supplier provide the required sizes in the correct style and colour?
e) Have outer garments been sized to allow, for example, for extra undergarments in cold weather?
f) Have individual wearers been consulted on the styles selected if appropriate?
g) How will data on the PPE be recorded and maintained e.g. date of installation, PPE traceability, uses, repairs?

Pre-washing

Pre-washing of PPE can be a benefit and may also be essential in the following ways:

a) Avoids the customer's experience of initial shrinkage
b) Removes loose sewing threads and packing creases
c) Softens the handle and improves the aesthetics *and comfort* of some fabrics
d) Reduces the risk of cross staining in future mixed loads
e) Badging after pre-washing reduces problems of cross-staining onto badges

ensures adequate hygiene levels (lean room garment - first time process)

Whilst the textile rental company might formalise this approach in a training programme or notes for representatives and use questionnaires to gain information from customers, it will be much more useful to discuss many of these topics directly with the Employer. A conversation will usually lead to a better understanding of the Employer's needs and level of knowledge of duties and may open other opportunities to provide additional services now and in the future.

A Systematic Approach to Hazard and Risk Assessment

It is important to remember that the Employer cannot delegate the responsibility for this assessment to another person or organisation, but providers of advice and information do have a duty of care and must not exceed their competence. The Employer could reasonably expect that somebody advising him on the purchase of PPE knew what they were talking about.

The Law requires that every Employer shall make suitable and sufficient assessment of:

a) The risks to health and safety of his employees to which they are exposed whilst they are at work;
b) The risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking.

This duty extends to such hazards as fire, machinery, VDUs, trips, slips and falls etc. which will normally be outside the immediate interest of the textile rental representative seeking to place a workwear or PPE contract.

Hazards that would be of interest in this situation may include:

a) Heat, and hot objects and flame
b) Visibility
c) Chemical splash (which will arise from a COSHH assessment[1])
d) Electrical discharge

N.B. Control of Substances Hazardous to Health (COSHH). These regulations require a hazard and risk assessment to be carried out on all hazardous substances used in

the workplace. Regulation 6 prohibits Employers from carrying out any work which is liable to expose employees to a substance hazardous to health without first making a “suitable and sufficient” assessment of the risks created by that work and the steps that need to be taken to comply with the regulations

For Additional Reference:

Don’t wash PPE at home

Summary

A brief summary could be compiled using the key elements from the following links to articles which provide useful and varied references.

The key reasons for not washing such workwear at home are:

1. Home washing offers no reassurance that all stains and soils are adequately removed without compromising the protective properties
2. Home washing habits may partially or completely reduce the effectiveness of the workwear's protective qualities, hence jeopardizing the wearer's safety
    1. Tumble drying reducing reflectivity
    2. Softeners destroying FR garment
    3. Temperature inconsistencies in domestic washing machines (too low or high for disinfection and garment integrity)
3. Workwear washed at home is not quality controlled for adherence to standards as it is in an industrial laundry
4. Home washing does not track the number of washes or the wear and tear of the garment, which provides vital information as to when workwear must be replaced.
5. Soiled workwear may damage your washing machine and contaminate other home washed laundry.

https://www.textile-services.eu/news/home-washing-is-a-risk-for-employee-safety-and-employer-liability.cfm

https://www.wiseworksafe.com/blog/view/extending-the-life-of-workwear-and-ppe

https://www.gov.uk/tax-relief-for-employees/uniforms-work-clothing-and-tools

Article 1, from an industry trade journal Cleaning Matters:

It'll all come out in the wash

One of the primary purposes of workwear is to help protect the wearer from injury and reduce the risk of accidents in the workplace. But wearing it is only half the battle; it's just as important to ensure that workwear is properly cleaned and maintained so that it performs to maximum efficiency at all times

It is the duty of both the individual and employer to make sure that all types of workwear and/or PPE (personal protective equipment) are kept clean, hygienic and fit for purpose. Cleanliness is vital as failing to wash all work garments properly can lead to the risk of infection for both the wearer and the people with whom he or she works. Dirt, oil, grease and other substances, if ignored, can also lead to deterioration and a subsequent reduction in protective efficiency. Without regular inspection, they can even cause accidents through stitching or fastenings becoming loose from gradual weakening. But simply throwing dirty garments into a domestic washing machine at home is not enough.

Home truths

The average temperature used at home is 48°C but bacteria can only be thoroughly destroyed when garments are boiled or washed at over 73°C. It's a common misconception to think that domestic washing of work clothes is sufficient; they may look clean and smell fragrant but they will not necessarily be microbiologically hygienic.

What's more, PPE that is washed at home might actually be damaged during each washing cycle causing the slow erosion of protective qualities such as within high-visibility strips or infection-resistant fabric, resulting in non-compliance with health and safety or internal hygiene regulations. So employers in particular should be aware of the false economy of allowing home laundering or in using a non-specialist contractor, as the integrity of every garment that is not correctly laundered and inspected can be put at risk with the resultant responsibility resting heavily on management's own unprotected shoulders.

Professional after-care

In the UK, peace of mind on all these safety issues can be assured by employing a member of the Textile Services Association who will be obliged to adhere to strict European and international standards using professional and high-tech laundry equipment and processes.

Personal protective equipment (PPE) that is washed at home might actually be damaged during each washing cycle causing the slow erosion of protective qualities

Danish workwear manufacturer F. Engel is an example of an organisation that places great importance on the proper after-care of its products which conform to all relevant British and European standard regulations.

Sales manager Mark McBrayne says: "We take enormous pride in our reputation for the comfort and long-term safety effectiveness of all our workwear lines and emphasise to our distributors that they should explain to all their customers the importance of correct washing and maintenance procedures. We maintain that if you have the best product it's worth giving it the very best care."

An exception to the 73°C washing temperature rule is Engel's 'Safety' Collection, which the company recommends should be washed at 60°C for best results. Many of F. Engel's corporate clients in the UK have on-going service contracts with two large workwear laundering and hygiene rental companies, Jacksons Workwear Rental based in Lincoln and Guarantee Laundry based in Sherborne. The success of these partnerships has led Engel to develop working relationships with other independent laundry service providers across the UK and allows the offering of a national service where needed by clients.

In Ireland, F. Engel works with Service Matters which is based in Roscommon and offers a national laundry service for the whole of Ireland. Each of these organisations offer the hire of all Engel workwear with service packages providing collection, professional washing using the best environmentally-friendly detergents and methods for any specific cleaning situation, repairs, re-treatment, tracking, auditing of each garment and delivery back to the client to tight schedules.

Richard Sewell of Laundry Insight, which offers impartial advice on choosing and managing the best workwear laundry service for any particular requirement on a national level, says: "In addition to the two major national players there is a wide choice of long established independent regional companies offering their services to customers in all market sectors. A lot of time and money can be saved when pointed in the right direction to a member of the Textile Services Association who will ensure the delivery of a competent wash process that doesn't damage the inherent protective qualities of the garment. The most efficient method is to choose a laundry that provides a specialist service subscribing to the 'SUCAM' principles that PPE should be correctly Selected, Used, Cared for and Maintained."

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Find more like this at: **www.cleaning-matters.co.uk** 21

Example trade journal article
My employer provides protective clothing. Do I have to wash it myself, or should this be my employer's responsibility?

The responsibility for maintenance of protective clothing lies with the employer. Regulation 7(1) of the Personal Protective Equipment at Work Regulations 1992 (note that protective clothing is defined as protective equipment) says: "Every employer shall ensure that any personal protective equipment

provided to his employees is maintained (including replaced or cleaned as appropriate) in an efficient state, in efficient working order and in good repair.

Regulation 8 also requires the employer to provide appropriate accommodation to store the protective equipment when it is not being used. In addition under Regulation 24 of the Workplace (Health, Safety and Welfare) Regulations 1992, the employer is required to provide 'suitable and sufficient facilities' for changing clothes when the person has to wear special clothing for the purposes of work. And finally, the employer must provide the equipment and service it free of charge to the employee.

So to summarise, the employer has to ensure that the protective clothing is suitable for the nature of the work, protects the employee, and is maintained and cleaned in an appropriate fashion. The best way for the employer to ensure all this is to have control of the process from beginning to end.

It is also important that you do not take hazards home with you in the form of dusts, chemicals or oils.

Check your employer's risk assessment and if necessary, seek guidance from a union or legal advisor.

Laundry Industry Trade Journal Article:

The case for PPE Workwear Rental: a validated, compliant and managed service preferable to home laundering

Go back perhaps only fifty or sixty years in the UK to when industrial and commercial employees turned up for work in whatever they had to wear, got it dirty, took it home to wash and repeated the cycle; perhaps not as frequently as they should. Then some enterprising individuals, responding to ever increasing legislation and more available budgets, started the Workwear revolution.

Managed Workwear Rental had arrived, to protect the wearer, promote the corporate image and off-load the routine issues for the employer onto the service provider.
There soon followed fabric technology developments, fashion and then even more legislation, culminating in the Personal Protective Equipment (PPE) regulations of 1992, duly enforced in 1996, updated in 2002 and then in 2013 the HSE produced the INDG 174 guide as well as availing us of www.hse.gov.uk/toolbox/ppe.htm

No excuses then, it's a gift to any workwear manufacturer and rental provider with revenues for each in the order of £300M p.a. in the UK.
But with the reward comes the potential for ALARM (Advice, Legislation, Application, Responsibility, Maintenance). Be prepared for what can go wrong and who may carry the can. The employer is responsible for assessing any risk to his employees, but it may be assumed that opting for a rental service passes on the ultimate duty of care.

Textile Rental companies still face the potential threat of claims and litigation and need to be able to brief sales personnel and other staff on the proper introduction, application and management control of workwear contracts involving compliance with PPE regulations.

The TSA ran a PPE seminar back in November 2015 and there is considerable reference data from this posted on the TSA website to enable anyone needing to advise a potential customer of the pitfalls of 'doing it yourself' when the better alternative is Workwear Rental. There is also complete detail of the regulations and standards for manufacture and laundering of each type of PPE to ensure quality control and the maintenance of performance in order to protect the wearer.

It all starts with a Risk Assessment of the job function and the golden rule that 'PPE is always the last resort' to ensuring worker safety.
It is important to remember that the Employer cannot delegate the responsibility for this assessment to another person or organisation, but those who provide advice and information do have a duty of care

and must not exceed their competence. The Employer could reasonably expect that somebody advising upon the purchase or provision of PPE knew what they were talking about, so do be careful and only ever stipulate what the PPE does, its fitness for purpose and NOT how you think it may suit the requirement.

The Manufacturer of the PPE is legally responsible for supplying information on its performance, care and maintenance and relevant standards compliance, including information on the circumstances which could lead to the protective attributes of the PPE being compromised, e.g. excessive soil burden, incorrect use of chemicals.
This said, the manufacturer will not always have prior knowledge of the soiling characteristics and frequency of change in a particular application or contract in which the PPE will be used and therefore such information must be shared.

The textile rental company should discuss the manufacturer's information with the customer (Employer) and explain potential restrictions on the use or cycle of use.
The rental company should discuss the requirements of particular PPE with its own suppliers, who must be made aware of any restrictions in the processing of a PPE item in order to preserve its protective attributes e.g. detergent suppliers who design wash processes for the laundry.

PPE must be tested by an approved test house, certified to its relevant category, CE marked and labelled with specified information for its application and care.

So this is where to start when advising of the benefits of a managed service as opposed to the customer specifying the required product and staff undertaking home laundering.
Industrial workwear washed at home can contaminate personal laundry as well as the machine and there is no guarantee that the wash process is sufficient to remove the soil or that it is not damaging the performance of the PPE fabric.

Also. look at the environmental and cost impact of laundering and note that by contracting to a managed service, industrial processing utilises:

- 52% less primary energy
- 73% less water
- 85% less detergent; while creating
- 33% less CO2 emissions
- 36% less NOx emissions

compared with typical operating costs for a laundrette or domestic machine.

And don't forget the cost of initial stock purchase, repairs and performance testing.

The service provider will specify the PPE in accordance with the risk assessment and manufacturer's advice, following which it will own and manage the provision of the workwear in every respect.

Testing of PPE clothing should only be undertaken competently and as per international standards , but the following should also be noted:

- it is imperative that a record is kept from original issue of the number of washes and always examine for residual soil, tears, holes and missing fasteners

- flame retardancy is difficult to check by non-destructive means, but it may be possible to sacrifice a portion(s) of the fabric and send to an accredited laboratory for testing
- chemical resistant garments generally require periodic treatment with the approved anti-penetrative finish which must be carried out by an expert and logged
- high-visibility garments can be checked against original fabric swatches for degradation and the reflective strips can be tested using a comparator/verifier (available from manufacturer)

For PPE to be accepted and to function correctly in all its forms, manufacturers, employers, service providers and wearers must share the responsibility for creating the right product, investing in its provision, care and maintenance and then wearing it.

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