

Skin protection: The fluorescence method of Dermalux as a briefing aid for employees

The employer must determine and evaluate the risks at the workplace and initiate measures for the minimisation of risk. After examining the substitution and determining the technical and organisational measures, the personal safety gear proves to be an important pillar for maintaining the health of the employees. Skin protection agents, which are mentioned in the PSA user guideline as a part of the personal safety equipment, but not in the manufacturer's guideline, obviously also play an important role in the operational practice. The TRGS 401¹ describes the state of technology in this context, occupational medicine and work hygiene and gives a detailed description of the use of skin protection agents.

The duty of the employer is not restricted to the provision of the personal safety gear. He must also instruct his employees, document this and examine the effectiveness of the selected protective measures. The last point is not very easy to implement in practice, since the success of the hand and skin protection measures is equated with keeping the skin healthy and is hence, not visible or measurable right away. The first step to optimum efficiency can be achieved with detailed instructions.

At the briefing, the employer must point out the risks and explain preventive measures – also taking into account the hygiene guidelines and the prevention of direct skin contact. According to TRGS 401, this includes the correct application of the prescribed safety measures and particularly, the appropriate use of skin protection agents.

Correct use of professional skin protection agents

According to § 15 of the Occupational Health and Safety Act² it is obligatory for the user to use the personal safety gear provided by the employer. But, even if appropriate personal safety gear has been selected, its availability on the workplace and application alone does not give any guarantee for its effectiveness. Skin protection agents work optimally only if they are consistently applied on the healthy and clean skin on a daily basis. Too often, this routine is not adequately followed in practice.

Besides, skin protection agents are effective only where they are used. While applying the crème, however one often forgets the spaces between the fingers and fingertips / nail beds. These are precisely the areas, where irritations occur first.

If, in practice, skin reactions appear frequently despite using skin protection agents, the effectiveness of the skin protection agent should not be doubted in the first place. More often, application errors, e.g. inconsistent application, use of insufficient quantities and rare application, lead to an inadequate protection result.

The fluorescence method according to Elsner / Wigger-Alberti

Since long, experts have been recommending that the training / instruction sessions must demonstrate the correct method of application of skin protection agents; the TRGS 401 also points out that the correct application of skin protection agents or an effective cleaning of the skin with fluorescent compounds can be practised under UV light.

¹ Technical rules for hazardous substances (TRGS) 401: Risk due to skin contact Determination – Assessment – Measures

² Act for the Execution of Work Safety Measures for Improving the Safety and Health Safety of the Employees at Work (Occupational Health and Safety Act - ArbSchG) dated 7th August 1996 (BGBl. I S. 1246), amended by Article 9 of the Act dated 27th September 1996 (BGBl. I S. 1461)

In fact, the visualisation of the correct application of a skin protection agent has established itself as an important and didactically meaningful step for achieving optimum efficacy. Since years, the fluorescence method forms an important component of skin protection and hygiene training sessions for employees. It offers innumerable application possibilities and should (must!), therefore be included in every skin protection training and instruction session for the employees.

The fluorescence method was developed and scientifically evaluated by Prof. Dr. med. Peter Elsner and Dr. med. Wigger-Alberti. It was adapted to the international state of technology and made practically usable by KBD GmbH, Weinheim - which has also brought training concepts as well as application-safe UV devices and the essential test agents on the market - under the name Dermalux®.

The procedure of this method is simple: Specially developed fluorescent testing agents, which are not visible in the normal light, are applied on the hands just as in the everyday work routine. Then, the hands are looked at in the Dermalux® checkbox or the Derma LiteCheck® device. The skin areas, on which the agent has been applied, appear white in the UV light, whereas the areas, on which no agent has been applied, appear dark and stand out rich in contrast.



Fig. 1: Application of the fluorescence method with the Dermalux® system

Below are mentioned some possible applications in the field of hand hygiene, health protection, quality check and prevention:

- Visualisation of the application efficiency of the skin protection agents (skin protection check)
- Checking the procedure of washing and drying hands
- Visualisation of hand disinfection
- Demonstration of cross-contaminations
- Exercises with hand gloves

With the Dermalux® fluorescence method, the procedures and exercises in training sessions can be standardised. As a result, training situations can be reproduced and the learning success measured.

Play safe!

The manufacturer of Dermalux® Systems reports that even today, "self-made" UV sources and test ointments are used in practice. This is not only unprofessional with respect to the participants in the training, but also involves serious dangers; hence, such experiments should be rejected for health and safety reasons! Each one of use should bear in mind that UV radiation - when used in an uncontrolled manner - may lead to irreversible damage to the skin and eyes. Depending upon the substance and concentration, fluorescent agents too can have a negative effect on the health!

Particularly during the training, the safety of the user should have priority. The Dermalux® method and the product systems require an appropriate performance of the tests as per the specifications and focus on user-friendliness as well as safe application in particular. The UV source is selected with respect to the luminosity and placement in the checkbox such that the skin is not subjected to any stress and a direct eye contact with the UV light is avoided. At the same time, the design of the devices ensures that ideal light conditions are created for observing the hands even in bright ambient light, whereby the luminosity of the test agents is adapted perfectly to the device technology.

The test agents of Dermalux® were developed as per the Cosmetics Regulation, are produced as per GMP and offer special protection and best skin compatibility.

Dermalux® fluorescence tests are scientifically evaluated and standardised. The method is internationally recognised and highly regarded by experts.

You have a choice: Group training or individual instructions?

Since years, the classic Dermalux® Checkbox Multimedia for camera operation has proven itself as particularly suitable for group trainings, major presentations and as a "stationary" training kit. A comprehensive range of accessories is available.



Fig. 2: Group training with the Dermalux® system

A new product, Derma LiteCheck®, was particularly developed for small-scale trainings, e.g. individual training, occupational checks or occupational medical check-ups. This is a training device in a file format, which is specially designed for mobile use.



Fig. 3: Derma LiteCheck® – UV device in the file format

Derma LiteCheck® is handy, light and can be made ready for use at any place within seconds. The device not only offers the same technical and safety-relevant advantages as Dermalux® Checkbox, but also fits within tight budgets.

Conclusion

The Dermalux® fluorescence method has proven itself since many years. It allows multifaceted training sessions for the employees filled with intensive discussions. By observing one's own hands, a very personal emotional feeling is generated. The image of one's own hands, one will always remember. Thus, the training effect is more long-lasting as compared to a mere verbal communication.

Practice has shown that employees, who have been trained or instructed "interactively" with the Dermalux® method, have a more positive attitude towards skin protection and hygiene measures and also implement them more consistently.

The communicative visualisation of a topic, which is, normally, even after training, not given sufficient importance in practice, is now possible with the new Derma LiteCheck: The correct implementation of skin protection measures, available even for mobile application in a fast, safe and cost-effective manner.

The practice for the correct application of skin protection agents or the appropriate cleaning of hands with the fluorescence method should be a part of every (safety) training. For all those responsible for work safety – first of all safety experts and industrial / occupational health physicians, the use of the Dermalux® / Derma LiteCheck® systems method is recommended as a standard practice.

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