



## Safe handling of disinfectants based on peracetic acid

For the use of following neomoscan® and neodisher® products:

neoseptal® S-PE  
neoseptal® PE 15  
neodisher endo® SEPT PAC  
neodisher® Septo PAC



Disinfectants based on peracetic acid (peroxyacetic acid – PAA) has been used safely in medical practice for many years. Due to its highly efficient disinfecting properties and a wide range of efficacy it is becoming increasingly popular. PAA is an organic peroxide compound and one of the most effective disinfecting active substances that breaks down into environmentally harmless degradation products like acetic acid and molecular oxygen after use.<sup>[1],[2]</sup>

PAA is a hazardous substance under chemicals legislation, and certain rules and precautions must be followed. Chemische Fabrik Dr. Weigert GmbH & Co. KG consistently implements the statutory regulations and supports users with the information required. Safe handling of Dr. Weigert products containing PAA has been practiced in medical and industrial applications for several decades. As a service and a guide, Dr. Weigert has compiled the following legal requirements and technical recommendations for handling PAA containing disinfectants for Germany.

### Concentration

The PAA containing products by Dr. Weigert are classified under the OP IV hazard group in accordance with German Social Accident Insurance Institution regulation DGUV Regulation 13 – Organic peroxides (previously BGV B4). This includes organic peroxides with the lowest hazard category.<sup>[3]</sup>

Excerpt from DGUV Regulation 13 (BGV B4) Organic peroxides, section 3:

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national legislation !**

“(1) (...) OP IV hazard group:

The peroxides in this group are flame-resistant and burn off so slowly that the surroundings are effectively not endangered by flames and thermal radiation. (...)

(2) The German Social Accident Insurance Institution assigns a risk group in coordination with the competent supervisory authority. (...)”

The stipulations of the main rules and standards, DGUV Regulation 13 (BGV B4) “Organic peroxides”, are simplified for OP IV mixtures.

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## Packaging and storage

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Storage is only permitted in original containers and in observance of the period of usability. Storage in/above a collecting tray is also recommended. The delivered containers are fitted with a vent valve. Therefore, the containers must be stored upright at all times. For this reason, the product must not be filled into other containers. The stipulations of additional statutory provisions must be observed, such as water protection law or occupational health and safety law as well as official guidelines. Combined storage with other hazardous substances and other materials of any kind is severely restricted and must be reviewed for permissibility and compatibility (see combined storage table in „Technische Regeln für Gefahrstoffe“ (TRGS) 510).[4]  
An exemplary abstract of section 7 of the safety data sheet for **neodisher endo<sup>®</sup> SEPT PAC** contains information on handling and storage.

SECTION 7: Handling and storage (excerpt from safety data sheet for **neodisher endo<sup>®</sup> SEPT PAC**)

“7.2. Conditions for safe storage, including any incompatibilities

Recommended storage temperature:

Value of  $> 0^{\circ}\text{C}$  to  $< 25^{\circ}\text{C}$

Requirements for storage rooms and vessels:

Keep in original packaging, tightly closed. Storage rooms must be properly ventilated. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Storage class according to TRGS 510:

5.2 Organic peroxides and self-reactive hazardous substances

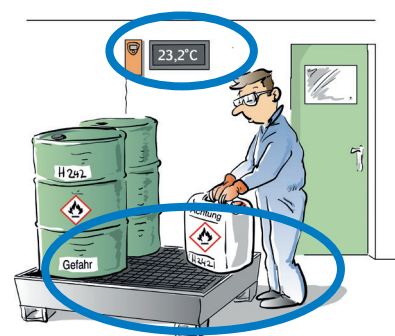
## Storage temperature

The specified storage temperature for PAA mixtures is based on the fact that the decomposition reaction is initiated endothermically, i.e. energy must be carried into the system. This may occur through heat. Once the decomposition reaction has begun, however, energy is released in the form of heat during the decomposition of PAA, which accelerates the reaction. As a result, the storage temperature should always be kept as low as possible.

One standard for the decomposition temperature is the SADT (self-accelerating decomposition temperature), which depends on the concentration and package size.

This information can be found exemplarily in the safety data sheet for neodisher endo<sup>®</sup> SEPT PAC in Section 9 / physical and chemical properties.[5]

In addition to safety factors, quality aspects also need to be considered. Chemische Fabrik Dr. Weigert stipulates in the safety data sheet a storage temperature of between  $0^{\circ}\text{C}$  and  $25^{\circ}\text{C}$  to ensure the specified period of usability.[5] In order to avoid excessive heating, temperature monitoring during storage is advisable; direct solar radiation must absolutely be avoided (including through windows). As a result, appropriate monitoring – and potentially air conditioning – should be provided for storage.



# Safe handling of disinfectants based on peracetic acid

## Training and operating instructions

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The applicable regulations must be observed by the user when handling hazardous substances. This means, for instance, instructing employees on the handling of PAA containing products prior to commencing activities and repeating refresher courses at least once per year thereafter. These instructions must be documented. Additionally, comprehensive operating instructions must be affixed for users (Gefahrstoffverordnung (GefStoffV – German Ordinance on Hazardous Substances)).

The in-depth publication by the IHO (Industrieverband Hygiene und Oberflächenschutz für industrielle und institutionelle Anwendung e.V. [German Association of Hygiene and Surface Protection Industries]) summarises the provisions of DGUV Regulation 13:

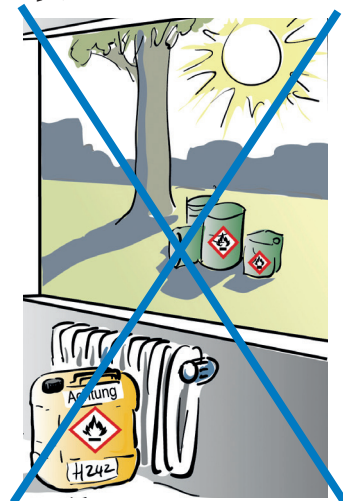
## IHO INSTRUCTIONS ON SAFE HANDLING OF PERACETIC ACID dated 6 May 2013 (excerpt)

“Only the general safety clearance applies for OP IV: if there is elevated danger for other buildings and equipment without permanent workstations, 10 m clearance must be ensured.

Protection from the effects of heat (heater, sunlight, process steam) is required due to the decomposability of the products and must be structurally ensured (and/or through regulations on handling).

If sources of heat are present in adjacent rooms, a minimum clearance of 0.3 m from the wall of the storage room or stockroom must be ensured for PAA products since a temperature of over 70°C (fire in adjacent room) could lead to hazardous reactions.

If fire-resistant construction has the same protective effect as a space of 30 cm, this clearance can be omitted.”



## Prohibition of smoking, elimination of ignition sources



Open flame and other sources of ignition must be kept away from areas where OP IV products are handled. Smoking is prohibited in these areas. These areas must be marked with a prohibition sign stating “Fire, open flame and smoking prohibited”.

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## Additional instructions on the safe handling of PAA containing products:



- PAA containing products may only be stored in and dosed out of original packaging in appropriate systems.
- Residual amounts of PAA containing products in packaging must never be transferred/returned, and must instead be disposed of professionally.
- Only dosing devices specially adapted for peracetic acid are to be used in order to avoid mix-ups and blending.
- PAA must not be enclosed in pipes between valves and must not be used in closed systems (e.g. spraying devices). Containers and pipes must have venting devices which also prevent the introduction of soiling.



- Peracetic acid may only come in contact with suitable materials. This also applies to dosing installations and pipe systems. Suitable materials include glass, china, acid-compatible glazed stoneware, PTFE and hard PVC (the latter two may however be susceptible to embrittlement). The following materials are not suitable, e.g. caoutchouc (natural rubber), rubber, soft PVC, aluminium, iron/steel, brass and copper.
- PAA must never be mixed with other cleaning agents and chemicals (e.g. alkalis, acids, cleaning concentrates, rinse aids, detergents).
- Any contamination of PAA containing products must absolutely be avoided. In particular, this applies for rust, cleaning cloths, metal shards/debris, ash, organic contaminants etc.
- Use a suitable binding agent (chemical binder) to soak up leaks or spills.

## Caution:

The contaminations specified above are highly effective catalysts that may cause the product to decompose rapidly and the packaging to burst in the event of contact with PAA products. PAA containing products must never be mixed with other chemicals (e.g. bases, acids and cleaning concentrates).

# Safe handling of disinfectants based on peracetic acid

The general rules for handling hazardous substances must be observed. In particular, these include:

- An index of hazardous substances in accordance with the Ordinance on Hazardous Substances must be kept.
- Preparing a risk assessment and instruction of employees prior to commencing activities as well as repeating training at least annually. A documentation requirement exists.
- Posting operating instructions in a format that can be understood by employees.
- Regularly monitoring the storage containers for integrity, cleanliness and permitted periods of use/storage.
- Providing the personal protection equipment and chemical binding agents required in the event of damage.

You can find the current product data sheet as well as the safety data sheet for PAA containing products online at [www.drweigert.com](http://www.drweigert.com) in the section Service / Downloads.

You can obtain additional information in the GisChem hazardous substance information system on chemicals for „Berufsgenossenschaft Rohstoffe und chemische Industrie“ (BG RCI) and „Berufsgenossenschaft Holz und Metall“ (BGHM), see [www.gischem.de](http://www.gischem.de), keyword: Peressigsäure. The information is only available in German.

In conclusion, we are able to confirm based on our longstanding experience with PAA products that safe handling can be ensured by following these precautions.

If you have any questions, please do not hesitate to contact us at any time.

## Sources/information:

- DGUV Regulation 13 (prev. BGV B4) – organic peroxides (see [www.bgrci.de](http://www.bgrci.de))
- Technical rules for hazardous substances – TRGS 510 – Storage of hazardous substances in non-stationary containers (see [www.baua.de](http://www.baua.de))
- IHO bulletin “Instructions on safe handling of peracetic acid” (see [www.iho.de](http://www.iho.de))
- GisChem – hazardous substance information system on chemicals for BG RCI<sup>1</sup> and BGHM<sup>2</sup> (see [www.gischem.de](http://www.gischem.de))
- Source for images (except for image of PAA containing products packaging on first page as well as prohibition sign stating “Fire, open flame and smoking prohibited” on third page): German Social Accident Insurance Institution for the raw materials and chemical industry, brief safety talk “Activities with organic peroxides” (SKG 016), available for order at [medienshop.bgrci.de](http://medienshop.bgrci.de)

## Emergency numbers:

- België / Belgique: Antigifcentrum / Centre Antipoisons: +32 70 245 245
- Deutschland: Giftinformationszentrum Nord (GIZ-Nord) Telefon: +49 551 19240
- France ORFILA téléphone : +33 1 45 42 59 59
- United Kingdom: General Public dial NHS Direct on +44 111, TOXBASE, +44 344 892 0111
- Nederlands Nationaal Vergiftigingen Informatie Centrum te Utrecht Telefoon: +30 2748888 (Uitsluitend bestemd om professionele hulpverleners te informeren bij acute vergiftigingen)
- Österreich: Vergiftungsinformationszentrale Telefon: +43 14064343
- Suisse Tox Info Telefon/téléphone: +41 145, [www.toxi.ch](http://www.toxi.ch)

For any questions regarding the safe handling of PAA containing products, please email us at: [sida@drweigert.de](mailto:sida@drweigert.de)

This information provides a summary of the regulations and technical recommendations in Germany at the time it was prepared.

It was composed to the best of our knowledge and belief and makes no claim to be complete. It does not release the accountable persons from their duty to inform themselves of current national regulations and to observe them.

[1] H. Mücke, Wissenschaftliche Zeitschrift der Universität Rostock 1970, 19 (3), 267-270.

[2] B. Becker, F. H. H. Brill, D. Todt, E. Steinmann, J. Lenz, D. Paulmann, B. Bischoff, J. Steinmann, Antimicrobial Resistance and Infection Control 2017, 6(114).

[3] [www.publikationen.dguv.de/dguv/pdf/10002/vorschrift13.pdf](http://www.publikationen.dguv.de/dguv/pdf/10002/vorschrift13.pdf), status: 27.04.2018.

[4] [www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/pdf/TRGS-510.pdf](http://www.baua.de/DE/Angebote/Rechtstexte-und-Technische-Regeln/Regelwerk/TRGS/pdf/TRGS-510.pdf), status: 27.04.2018.

[5] [https://www.drweigert.com/com/uploads/tx\\_product\\_manager/downloads/product/safetySheet/neodisher-endo-SEPT-PAC\\_SDB\\_GBen\\_PN4075\\_2017-06-15.PDF](https://www.drweigert.com/com/uploads/tx_product_manager/downloads/product/safetySheet/neodisher-endo-SEPT-PAC_SDB_GBen_PN4075_2017-06-15.PDF), status: 04.07.2018.

[6] [www.iho.de/images/iho-verband/Themen/Stellungnahmen/2013-06-05\\_Zusammenfassung\\_PES\\_Broschuere.pdf](http://www.iho.de/images/iho-verband/Themen/Stellungnahmen/2013-06-05_Zusammenfassung_PES_Broschuere.pdf), status: 27.04.2018