

Proven safe handling  
of hazardous drugs

**PhaSeal®**

# 1,440,000 millilitres...

...the amount of cytotoxic drug PhaSeal has prevented from contaminating your working environment over the last fifteen years.

Based on a study by Bengt Gustavsson;  
Evaluation of technetium assay for monitoring of occupational exposure to cytotoxic drugs (J Oncol Pharm Practice 1997;3:46).

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# recognizing the **CHALLENGE**

Repeated staff exposure to hazardous drugs may cause infertility, miscarriages, birth defects, leukemia and other forms of cancer. With PhaSeal you are able to safely protect your staff as they handle hazardous drugs during preparation, administration and waste disposal.

## PhaSeal is the logical choice because...



**...it prevents the escape of hazardous drug aerosols and vapors.**

PhaSeal protects your staff from exposure to hazardous drug contamination.



**...it prevents leakage throughout the entire drug transfer process.**

The PhaSeal double membrane technology creates dry connections and disconnections during drug preparation and administration.



**...it is a safe and easy to use drug transfer system that you can trust.**

All staff who handle hazardous drugs need to feel secure and confident using the device – every transfer, every day.



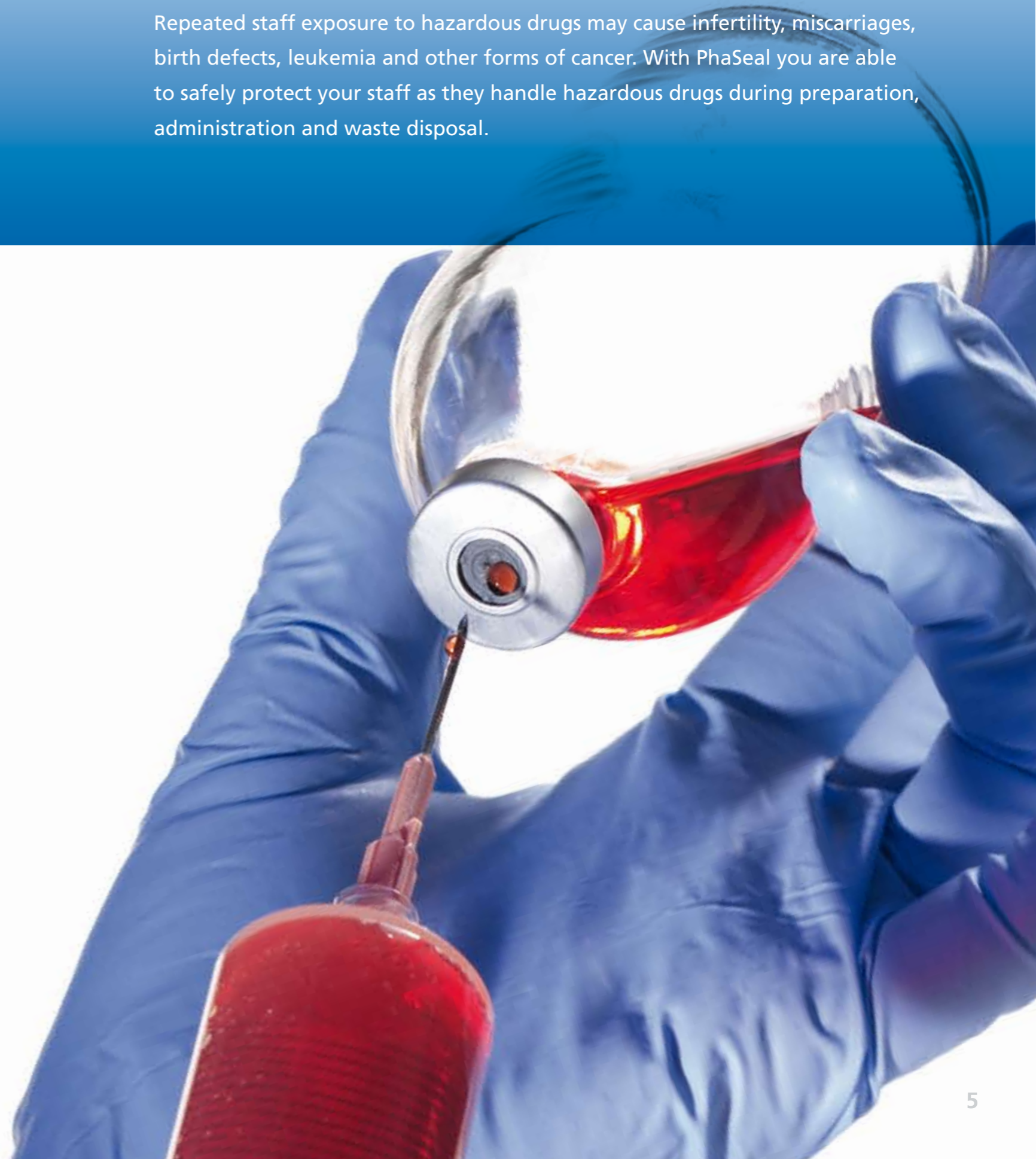
**...it has been proven effective.**

PhaSeal is supported by 20+ independent studies and more than 15 years of clinical experience.



**...it is cost efficient.**

A positive economic cycle may be established by protecting the microbiological integrity of drug vials using the PhaSeal closed-system drug transfer device. Learn more about Drug Vial Optimization on page 11.



# defining the SOLUTION

## Safe throughout the entire process

### Preparation

You are safe using PhaSeal during drug preparation because the sealed, pressure equalizing expansion chamber contains all hazardous drug vapors and aerosols.



PhaSeal allows you to work with all drugs and standard drug vials, from multi-dose to single dose vials.

### Administration

You are safe using PhaSeal when administering hazardous drugs because the double membranes remain dry and leakproof during disconnections.



The closed administration of drugs can be performed safely and confidently with PhaSeal. The PhaSeal System is compatible with all standard IV ports, sets and syringes.

### Waste Disposal

Your environment remains contamination free as PhaSeal ensures that drug residuals stays within the system and is not released into the environment.



The PhaSeal system remains closed even during waste disposal. No drug liquid or vapors will leak into the surrounding environment.



# understanding the CONCEPT



The PhaSeal system is based on three primary components:

- Protector
- Injector
- Connector

Carmel Pharma combines scientific engineering with technical research & development to produce an effective closed-system drug transfer device that surpasses your expectations regarding the safe handling of hazardous drugs.



**Injector**  
Syringe safety device

The Injector Luer Lock attaches to a standard syringe or IV line for a dry, leakproof connection during drug preparation and administration. The Injector Luer Lock ensures a closed drug transfer by means of tightly sealed, double elastomeric membranes.

**Connector**  
Access port

The Connector is the PhaSeal access port for closed administration of hazardous drugs during injections and infusions. It attaches to standard Luer Lock ports and seals these thanks to the unique membrane design.

**Protector**  
Drug vial access device

The Protector is a pressure equalization device that is permanently attached to the vial and is used in the preparation of either powder or liquid drugs. The Protector provides airtight safety thanks to the sealed expansion chamber and dry leakproof connections. It effectively ensures neutral air pressure during the entire preparation procedure.

# appreciating the VALUE



## Why do people choose PhaSeal?

### Safety...

...should be viewed as both an asset for, and a testament to, the integrity of your entire institution. The PhaSeal systems core safety features – the airtight pressure equalization chamber and the leakproof double membranes – give you a system whose safety you can trust in and feel confident using.

### Quality...

...is proven by results but measured by you. For fifteen years the PhaSeal system has been transferring hazardous drugs safely – every time, every day. That's why you have credited us as the safety experts and why you have rated our product as the Gold Standard drug transfer device.

### Ease of use...

...increases the confidence of your staff using PhaSeal. Ergonomically designed and universally compatible components requiring a simple 'push-turn-push' motion makes transferring hazardous drugs effective and, most importantly, safe.

### Clinical evidence...

...is recognizing the value and professionalism in science based fact. PhaSeal is supported by over 20 independent published scientific articles. This gives an insight into the research behind our system and a basis for your confidence in PhaSeal.

### Cost efficiency...

After fifteen years, the PhaSeal system is still the only clinically proven closed-system drug transfer device on the market. Now, the same system that has been uniquely proven to protect you and your employees from hazardous drug exposure may also help you obtain an economic benefit. This can be achieved through Drug Vial Optimization (DVO).



*Your decision to use PhaSeal is supported by the quality of our products, the level of safety and ease of use they provide, as well as the cost efficiencies they can produce.*

## PhaSeal – Combining Safety and Savings

### PhaSeal

- Closed-System Drug Transfer Device
- Dry, leakproof connections
- Airtight expansion chamber

*PhaSeal provides a physical barrier that helps maintain microbiological integrity*

### Microbiological Integrity

- Protection of the drug
- Extended use of drug vial
- Minimizing drug waste

*Optimizing drug usage may lead to significant cost savings*

### Cost savings

The use of multi-dose vials until the end of their chemical expiry dates can save a substantial amount of money. Additionally, PhaSeal's unique design allows you to completely empty the vial. This also contributes to cost savings.

*These savings can offset the cost of implementing PhaSeal*

### DVO concept

PhaSeal will provide your staff with personal safety as well as helping to secure the microbiological integrity of the drug vial. This along with the DVO concept can create cost savings.

*PhaSeal – a unique combination of safety and savings*

# making the COMMITMENT

## The proven safe transfer of hazardous drugs is at hand. It should be in yours.

There's no need to wait for the reliable, clinically proven and cost efficient drug transfer device that meets your safe handling requirements – it has already been here for more than fifteen years.

PhaSeal takes your staff to a level of thinking beyond "how it works" to where they simply trust that it does. Your decision to implement PhaSeal is validated by the increased confidence your staff develop as they acknowledge they are being protected by a quality

product, and our clinical support teams are ready to educate and assist your staff over this implementation period.

Your peers have verified the closed system mechanisms of the PhaSeal system over 20 times in independently produced scientific studies and publications, and our sales force is happy to present you with the studies that answer the questions you might have.

An important aspect of investing in a drug transfer device is making sure the investment returns dividends. The DVO concept uses the closed qualities of the PhaSeal system to increase the savings component of your drug budget. Understanding the facts behind drug transfer devices can mean the difference between a good investment and a bad one.

Increase your environmental safety in three easy steps.

1

### Decision making

Your decision to implement PhaSeal is the start of your relationship with safe handling using a closed-system drug transfer device.

2

### Implementation

An entire team comprising dedicated sales representatives and certified clinical support experts are available to assist you during the introduction of PhaSeal into your clinic, and into the future.

3

### Clinical Support

Our clinical support team together with our online resources ensures that you and your staff can feel comfortable and confident using the PhaSeal system.



## Experience and results from 20+ independent studies

Since 1994, PhaSeal has been subjected to more than 20 independent, published scientific studies which can be categorized into two broad groups; those relating to the clinical effectiveness of the PhaSeal system, and those relating to the performance of PhaSeal.

Some studies have compared the effectiveness of the PhaSeal system over other drug transfer devices. Other studies have proven that PhaSeal complies with both the NIOSH and the ISOPP requirements of a closed-system drug transfer device.

For more information and documentation about the PhaSeal system, visit [PhaSeal.com](http://PhaSeal.com)

PhaSeal ensures that people who prepare, administer and handle hazardous drug waste are confident that they are safe – every transfer, every time, every day.

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