



## Transport and Storage of Propellants: Procedure 6

### HANDLING AND RETURN TO MEXICHEM FLUOR OF EMPTY PACKAGES (CYLINDERS, DRUMS) AND ISO CONTAINERS PACKAGES

#### General

As part of Mexichem Fluor's overall approach of providing efficient and problem free deliveries of ZEPHEX® propellants there are certain requirements, concerning the return of empty cylinders and drums, with which customers are asked to comply.

These requirements are straightforward steps to take, maintain the integrity of the packages between deliveries, and avoid time-consuming reconditioning of packages and the associated costs.

Mexichem Fluor aims to deliver top quality, compliant product in all sizes and types of package. The rigorous control of packages throughout the cycle of their use is critical to Mexichem Fluor's ability to deliver on this aim and to deliver to customer requirements. This is particularly the case with respect to packages made from carbon steel.

#### Requirements

Mexichem Fluor's requirements are that customers:

- i) Maintain a positive vapour pressure (>1 barg) within the package,
- ii) **Do NOT** evacuate residual propellant vapour from the package,
- iii) Covernuts (or blanking caps) must be fitted to all outlet connections,
- iv) Tamperproof seals must be fitted to package valves.

#### Maintaining a positive vapour pressure within the package

The maintenance of a positive vapour pressure within the package once the liquid propellant has been discharged is critical. Operationally this means that some propellant vapour must always be left in the package. Use of liquid pumps to discharge the liquid propellant will not reduce pressure below the saturation pressure of the propellant and will therefore mean that residual vapour (and pressure!) remains in the package.

**Do NOT** use a vapour compressor to recover residual vapour/product from the package.

## **Consequences of NOT maintaining positive vapour pressure**

Maintaining a positive vapour pressure within the package will eliminate the possibility of there being unwanted ingress of air, moisture and other particulate contamination. Air and moisture in particular can have a detrimental effect on certain types of packages.

For carbon steel packages (such as the GC 107/380 horizontal drums and TRG drums) ingress of both air and moisture can cause a significant rusting effect on the interior of the package. In this event it is necessary for the package to be reconditioned, which, dependent upon the extent of the rusting, would involve shot blasting the package at a cost in excess of \$500. Moreover the package will be out of circulation for 2-3 weeks during this process.

For stainless steel packages [such as the CODAP 95 (BSI) upright drums] rusting is clearly not a problem, but moisture and particulate contamination are undesirable occurrences in themselves, and must be avoided.

A thorough cleaning and revalidation process will have to be undertaken on any package which has not been handled and returned in the correct manner, and obviously such a process would have to be undertaken on any package which has had to be reconditioned due to a rusting problem. The cleaning/revalidation process entails a further cost (\$300-\$500) and delay in returning a package to circulation.

## **Covernuts/blanking caps**

Once the liquid propellant, or a proportion of it, has been discharged from the package and the package is disconnected from the customer installation, covernuts/blanking caps must be fitted to the package valve/outlet connections.

This prevents moisture/extraneous matter getting into these connections, which can potentially go 'backward' into the package, or if the package is subsequently reconnected to the customer facility can potentially go 'forward' into that facility.

Obviously this is not a desirable outcome from any point of view!

## **Tamperproof tag seals**

Mexichem Fluor delivers ZEPHEX® propellant in containers fitted with uniquely numbered seals on the container valves. Pictures of tag seals are given in Appendix 1.

The seal numbers are stated on the Certificate of Analysis (C of A) provided with the product. Before using the product, customers are asked to check that:

- the tag seals are in place,
- the tag seals have not been tampered with,

- the unique number on the tag seals match those identified on the C of A,
- blanks are fitted to the outlet connections.

and to notify Mexichem Fluor (zephexsales@mexichem.com) if there is any non-compliance with the above.

In return, Mexichem Fluor ask that when the tanks are empty customers:

- fit new, uniquely numbered tamper proof tag seals (issued free by Mexichem Fluor),
- list the tag seal numbers on the Return Note accompanying the package,
- ensure the covernuts/blanking caps complete with gasket are fitted to outlet connections.

By ensuring the integrity of the empty package whilst it is in transit from the customer site to Mexichem Fluor, package quality is maintained and the package can be reused and refilled without undue delay and associated cost.

Mexichem Fluor outlines these requirements concerning the return of empty packages in the expectation that customers will be able to comply with them.

In the event that packages, particularly carbon steel drums, are returned in a condition that requires reconditioning and revalidation for use then costs up to \$1000 will be incurred, which Mexichem Fluor will expect to recover from the customer concerned.

Mexichem Fluor acknowledges that it does not give credit for vapour in returned drums and cylinders. It is worthwhile reflecting upon the fact that even in drums of ca. 1 metric tonne capacity, the value of the residual vapour propellant is typically less than a quarter the costs involved in restoring the package to use if this vapour is removed by the customer and damage to the interior of the drum ensues.

Customers are advised that it is in the interest of all parties to follow the requirements of this procedure.

## **BULK CONTAINERS**

The requirements outlined above apply with equal validity to bulk road containers (ISO containers): Thus Mexichem Fluor's requirements are that customers:

- i) Maintain a positive vapour pressure (>1 barg) within the container,
- ii) Do NOT evacuate residual propellant vapour from the container,
- iii) Blanking caps must be fitted to all outlet connections,
- iv) Tamperproof seals must be fitted to container valves.

Mexichem Fluor do offer credit for the residual vapour/liquid heels within an ISO tank container, provided that the container is returned with tamperproof seals attached to the container valves and the integrity of the residual vapour/liquid heels can be assured. In this scenario it is possible to 'fill on top' without having to recover vapour and/or revalidate the container for use.

In the event that Mexichem Fluor have to recover residual vapour/liquid heels as a result of incorrect practices being followed by customers then the cost of this recovery, and the re-work of the recovered material, will have to be offset against the credit for the returned material.

## **APPENDIX 1: TAG SEALS**



**Mexichem UK Limited, The Heath Business and Technical Park,  
Runcorn, Cheshire, WA7 4QX  
Tel: +44 (0) 1928 514840  
e-mail: [zephxsales@mexichem.com](mailto:zephxsales@mexichem.com)  
[www.mexichemfluor.com](http://www.mexichemfluor.com)**

Information contained in this publication or as otherwise supplied to Users is believed to be accurate and given in good faith, but it is for the User to satisfy itself of the suitability for its own particular purpose. Mexichem Fluor gives no warranty as to the fitness of the Product for any particular purpose and any implied warranty or condition (statutory or otherwise) is excluded except to the extent that such exclusion is prevented by law. Mexichem Fluor accepts no liability for loss or damage (other than that arising from death or personal injury caused by defective product, if proved), resulting from reliance on this information. Freedom under Patent, Copyright and Design cannot be assumed. ZEPHEX® and Mexichem Fluor® are Trademarks of Mexichem SAB de C.V. Mexichem UK Limited is Registered in England No 07088219.

© Mexichem Fluor 2010. All rights reserved. Not to be reproduced without the consent of the copyright owner.