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Guidance on Practice for Lubricants Warehouse Design and Operation

GP 82-41

BP GROUP
ENGINEERING TECHNICAL PRACTICES

Foreword

This is the first issue of Engineering Technical Practice (ETP) BP GP 82-41, based on an earlier document developed and used by AsPac Lubricants with input from other regional Lubricants businesses and additional input from individual subject experts within the business.

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Introduction

The implementation of this GP poses special challenges because of the diversity and the extent to which we are dependent on third parties and the difficulty of supervising distribution operations in the field. We must nevertheless be satisfied that our distribution operations are carried out competently and safely, and in accordance with all relevant national and local legislation. This GP has been prepared to assist management to fulfil this aim.

At present this GP applies to LSC operated warehouses only, but third party warehouse operations should be encouraged to comply with its requirements and guidance.



1. Scope

This Technical Practice is intended to outline the essential Design, Operational and HSSE requirements for warehouses and external areas used for the storage and distribution of lubricants and related products.

It is not intended to be a detail design manual for warehouse installation (existing or proposed) and/or duplicate existing BP and external standards, and/or replace local regulatory requirements. However, this document should serve as a basis for evaluation, compliance and continual improvement in HSSE performance of these facilities.

2. Normative references

The following documents contain requirements that, through reference in this text, constitute requirements of this technical practice. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical practice are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

BP

Lubricants

GP 82-12	Bulk loading and unloading of lubricants
GP 82-51	Fire protection and response in lubricant blend plants
GP 82-52	Storage and handling of flammable materials in lubricant blend plants
GP 82-53	Site drainage and containment in lubricant blend plants
GP 82-62	Lubricants HSSE SOP No. 2 Energy Isolation
GP 82-65	Lubricants HSSE SOP No. 5 Working at Heights
GN 82-303	External storage of drums and IBCs
GN 82-410	Inspection of handrails, platforms, ladders and stairs
GN 82-411	Emergency lighting
GN 82-510	Fire precautions for storage of polyethylene drums
GN 82-511	First aid kits in lubricant blend plants and warehouses
GN 82-513	Spill response equipment in blend plants and laboratories

Fork Lift Truck Operations: Minimum Safety Standards

Asia Pacific Lubricants

Safety Guidelines for Fork Lift Trucks

Castrol (Industrial) Australia Pty. Ltd.

HSSE model procedure: Dangerous goods storage & management guidelines

Group

gHSEr Framework

Driving Safety Standard

Australian Standards

National Occupational Health and Safety Commission Sydney [NOHSC: 2017(2001)]:

Storage and handling of workplace dangerous goods, national code of practice



Australian standard AS 1940: 1993 (and draft 2003):
The storage and handling of flammable and combustible liquids

Singapore Standards

Singapore standard CP 40: 1987:
Code of practice for the storage of flammable and combustible liquids

3. Terms and definitions

For the purposes of this GP, the following terms and definitions apply:

Bund (dike)

A wall surrounding a storage compound (such as tank farm or drum storage area) to contain any spilt product and prevent it flowing into the general site or surrounding area.

Chimb grab

A device fitted to a FLT to handle drums by clamping onto the top rim (chimb) of the drum rather than supporting the drum from below

Decanting

The process (usually manual) of transferring product from one container to another, typically from drums to small packs.

Dock leveller

A device fitted to a loading bay (dock) to match its level with that of the trailer or container being loaded or unloaded. This ensures ease of access for both personnel and handling equipment such as FLT's.

Tail lift (lift gate)

A powered, moveable platform fitted to the rear of a truck or trailer to allow loading from ground level.

Vehicle restraint

A mechanical device, preferably of proprietary design and construction, used to prevent unwanted movement of vehicles or trailers, for example during loading and unloading.

Quarantine product

Product that cannot be released for shipment to the customer due to, for example, contamination, poor quality or defective packaging.

4. Symbols and abbreviations

For the purpose of this GP, the following symbols and abbreviations apply:

CCTV	Closed Circuit Television
ESFR	Early Suppression Fast Response
FLT	Fork Lift Truck
JSA	Job Safety Analysis



LOTO	Lock Out/Tag Out
MSDS	Material Safety Data Sheet
PE	Polyethylene
PP	Polypropylene
PPE	Personal Protective Equipment
PSDS	Product Safety Data Sheet

5. General requirements

5.1. Access

In order to prevent unauthorised personnel from gaining access to the warehouse, an employee should accompany visitors and contractors, except in the event of emergency. Any restricted area shall be locked whenever it is unattended.

Access to any 'out-of-bounds' compound shall be controlled through demarcation and 'authorised personnel only' signage.

5.2. Road markings

Road directions should be clearly indicated with arrows in the warehouse compound. A "one way" system should be adopted where practical. Parking areas for fork lift trucks (FLT) and other vehicles should be clearly demarcated.

Permanent aisles and passageways should be clearly marked in the covered warehouse. Vehicle ways, pathways and access free zones should be marked on the covered warehouse floor and shall not be used for storage of product or any other materials.

5.3. Separation of vehicles and pedestrians

A demarcated two-way pedestrian footpath of 0,8 to 1,2m (3ft to 4ft) width should be provided for safe staff access. Fixed barriers should be installed where practicable to separate pedestrian and vehicle routes, particularly at points of high traffic movement and/or restricted view.

A dedicated driveway of at least 1.5 times the width of the FLT - typically 2m (6ft) - should be painted on the floor for the forklift traffic movement. For movement in the aisle between the racking systems, the width should be 1.35 times the length of the FLT measured from the tip of the fork to the rear of the truck – typically 4m (13ft) for a standard counterbalance FLT.

5.4. Safety signs and notice board

Any warning, conditions of entry, emergency directions or other information intended for persons entering a restricted area shall be displayed on signs and notices at each point of access. Such signs and notices shall include but not limited to:

- No smoking, no naked flames
- Restricted area, authorised personnel only
- Emergency contact phone numbers
- Layout diagram showing location of hazardous products (if any), fixed fire protection facilities, emergency stop switches, the drainage system and any associated isolation valves.
- Emergency exits and walkways



- f) Fire alarm call points
- g) Fire extinguisher points
- h) Equipment emergency stop switches
- i) Personal protective equipment (PPE) requirements
- j) FLT traffic warnings
- k) First-aid kit and eyewash
- l) Sprinkler switches (where installed)
- m) Appropriate use of signals and directional warnings for elevators, hoists, conveyors, balers, etc.
- n) Prohibited usage of mobile telephones in flammable product storage area

Examples (not exhaustive) are provided in Annex A1.

5.5. Traffic flow and control

Vehicle access roads are designed to carry high volumes of traffic efficiently. For this reason dedicated roads should be used for access and exit points. Traffic on each carriageway should be controlled to flow in one direction only and there should be no traffic crossing the flow.

The travel distance should be designed to be as short as practicable using the logical flow of goods through and around the warehouse.

Similarly, FLT traffic flow within the warehouse shall be optimised taking into consideration of travel distance and congestion of forklifts. Typical flow diagrams are given in Annex B.

5.6. Security and licensing

During operating hours, security measures (including either contracted security guards or internal staff members) shall be put in place to control and check vehicle/goods movement in and out of the warehouse. For after office hours and holiday periods, security guards should be used to protect the premises and use of closed circuit television (CCTV) is recommended to enhance vigilance and security. An intruder alarm system should be installed where possible.

External perimeter lighting around the fence and entrance should be provided and switched on after nightfall to aid security surveillance.

The warehouse shall be appropriately licensed for all its activities/operations as required by the local authority.

5.7. Cleanliness and housekeeping

The premises of the warehouse should be kept clean and tidy at all times with regular cleaning and clearing away of unwanted items.

The following housekeeping procedures shall be practised and checklists developed for regular audits:

- a) Aisles of the warehouse kept clear of all materials
- b) Packages and equipment not placed where they could jeopardise entry and exit. This is particularly important for designated emergency exit routes.
- c) Stock integrity regularly monitored (old stock, deterioration, leak, etc)
- d) All packages handled with care to minimize leaks
- e) Minor spills dealt with promptly using correct spill kits
- f) Labels retained on emptied packaging

