



Jurong Port

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To: Port users, tenants and lessees

SAFETY BULLETIN ISSUE 9 – WY 2017: MINOR STORAGE OF PETROLEUM AND FLAMMABLE MATERIALS (P&FM)

1. Please refer to the attached Safety Bulletin Issue 9.
2. To provide storage standards for Petroleum and Flammable Materials (P&FM) which are within the exemption limits. We would like to urge all tenants and lessees to comply with the Fire Safety Regulations strictly for your premises.
3. Tenants and leasees may be sanctioned under Jurong Port's Demerit Point Scheme (DPS) if non-compliances are found during the Arson Prevention Inspection at your premises.
4. Kindly also disseminate the said information internally.

Yours Sincerely

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On behalf of

Fire Safety Manager

Workplace Safety & Health

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Minor Storage of Petroleum and Flammable Materials (P&FM)

JP's Workplace Safety & Health (WSH) Department had conducted Arson Prevention Inspections at various locations including the tenanted warehouses, offices and leased areas. For the 4th Quarter of WY17, focus is given to the captioned matter. Common findings are as follow:

Common improper P&FM Minor Storages



Fig. 1 Diesel Storage Areas



Fig. 2 Chemical/ Solvent Store



Fig. 3 Unidentified packaging

Recommended P&FM Minor Storage



Fig. 4 Sample of Safety cabinet



Fig. 5 Labelled identified packaging

What qualifies as Minor Storage of P&FM?

As per the SS532: 2016 – Code of Practice for storage of flammable liquids, any storage of flammable liquids in quantities **not exceeding** Table 1 shall be classified as **minor storage**. The table below spells out the volume restrictions within a minor storage area. Any storage exceeding the limits shall be stored in proper safety cabinet **not exceeding 250 Litres** per cabinet (refer to Fig. 4).

Table 1 – Minor Storage

Location	Maximum Capacity of liquid storage in Litre (L)			
	Category of Liquids stored (GHS category)			
	Cat I (Flashpoint <23°C, Boiling Point ≤35°C) Cat II (Flashpoint <23°C, Boiling Point >35°C)	Cat III (Flashpoint ≥23°C and ≤60°C)	Cat IV (Flashpoint >60°C and ≤93°C)	Mixed Category
Storage – Warehouse, store	i. 5 L ii. 0.2 L/m ² and not more than 20 L per minor storage area	i. 10 L ii. 0.5 L/m ² and not more than 50 L per minor storage area	i. 20 L ii. 1.0 L/m ² and not more than 100 L per minor storage area	i. 20 L ii. 1.0 L/m ² and not more than 100 L per minor storage area
Factories – Maintenance purposes;	i. 10 L ii. 0.5 L/m ² and not more than 50 L per minor storage area	i. 20 L ii. 1.0 L/m ² and not more than 100 L per minor storage area	i. 50 L ii. 2.0 L/m ² and not more than 200 L per minor storage area	i. 50 L ii. 2.0 L/m ² and not more than 200 L per minor storage area

How do I provide a safe storage for my P&FM mixtures/ Minor Storage?

Recommended precautions stated in the SS 532: 2016 requires end user to observe the following:

- Storage shall not be in proximity of ignition/ heating source
- Containers to be kept closed when not in use. Decanting to be done in well ventilated area away from ignition source
- Transportation should be done in a manner that it minimises likelihood of a spillage or fire
- Liquids shall not be stored or used where escape route may be jeopardized
- Person handling the flammable liquids should be aware of the hazards involved
- Any spillage shall be cleaned up immediately and materials used for clean-up to be properly discarded/ disposed and not into the public sewer system
- Any materials that might interact dangerously if mixed shall be kept apart to minimise possibility of interaction
- Containers shall not be pressurized as a means to transfer unless manufactured design
- Concentrated storage of flammable liquids in a single area to be avoided to reduce fire load and potential of fire spread

Any P&FM storage license required for a mixture of P&FM?

As per SCDF advice, exemption from the requirement of a license will be granted if the mixed storage falls below the limits below:

P&FM mixture state	Maximum Capacity of liquid storage in Litre (L)
Solids (i.e. Alum powder, Calcium Carbide etc.)	20 kg
Liquids (i.e. Butanol, Acetone etc.)	40 L
Gaseous (i.e. Acetylene, Hydrogen etc.)	10 kg
Mixed states (i.e. Acetone, Calcium Carbide, Acetylene etc.)	20 kg

Are more than one minor storages allowed?

Apart from the guidelines for P&FM storage license, where there are more than one minor storages within same boundary, the following has to be complied with:

Types of minor storage	Separation distance
Between 2 indoor minor storages	Non sprinkler area (10m), Sprinkler area (7.5m)
Outdoor minor storage and facility boundary	(1.5m)
Between 2 outdoor minor storages	(7.5m)
Between indoor minor storage and outdoor storage	(5m)

Self-Regulation and Corrective Actions

WSH Department urges all port users, tenants and lessees to comply and take immediate corrective action(s) if your workplace has any of the above fire safety infringements.

Actions will be taken against any non-compliance unless:

- 1) Non-conformance is already identified internally;
- 2) Action plan is already in progress with deadlines stipulated within reasonable timeframe and
- 3) WSH is kept in the loop and updated on progress status.

Reference:

SS 532: 2016 - Code of Practice for storage of flammable liquid
SCDF Info on P&FM Storage License - https://www.scdf.gov.sg/content/scdf_internet/en/building-professionals/fire-safety-licensing-and-enforcement/Petroleum-Storage-Tpt.html
WSH Council - https://www.wshc.sg/files/wshc/upload/cms/file/2014/WSH_Guidelines_MHCP.pdf