AS 1940 Cabinets and the Dangerous Traps set for Fire Fighters

1. Key Points

WorkSafe is not acting as a prudent and responsible regulator tasked with addressing the very high non-compliance with cabinets used to store flammable liquids at many workplaces. WorkSafe is aware there is a widespread problem, yet has failed to take any observable action to deal with it. We ask "why not?" when the rules are clear and the solutions are obvious.

- Standards Australia[1] publishes safe practice requirements for storage and use of hazardous substances, including AS 1940 in which the requirements for a fire-proof storage cabinet are defined. This is one of many "standards" that are specifically incorporated into the Hazardous Substances Regulations 2017[2] (**Regulations**).
- The Regulations specifically require a cabinet to meet the requirements of AS 1940 before it can be used inside a building at a workplace to store hazardous substances, especially flammable liquids.
- WorkSafe has exhibited confusion regarding its role in ensuring that the Regulations are complied with and a nonchalance that is irresponsible when informed about specific instances of non-compliant cabinets and wholly-inadequate inspections by compliance certifiers. Some of its efforts (described herein) have been farcical.
- We believe the majority of cabinets able to be purchased are non-compliant with AS 1940. The market for sale and supply of cabinets is unregulated and unpoliced which WorkSafe can and should take steps to address.
- **We argue WorkSafe's failures are setting up dangerous traps for the unsuspecting fire fighters from FENZ who are attending more than 800 incidents annually at NZ workplaces involving hazardous substances.**

1. Background - Lawful Storage of Flammable Liquids in AS 1940 cabinets

Once a PCBU (other than a retail shop) has more than 15 litres of flammable liquids at the workplace, there are only two ways allowed by the Regulations for storage of such liquids inside a building:

- Structures inside the building which have fire-rated walls and ceilings[3]
- AS 1940 cabinets.

Both types of storage achieve similar objectives of preventing fire from outside the storage area from reaching the flammable liquids inside and at least delaying the spread of fire from within the storage area to other parts of the building.

The relevant rules are found in Part 11 of the Regulations and, specifically, regulations 11.11 and 11.29, in relation to storage of flammable liquids in AS 1940 cabinets. Reg 11.1 defines the specific requirements for each storage option. The specific reference to the requirements for cabinets (in reg 11.11) is set out in full below:

[1] www.standards.org.au

[2] Health and Safety at Work (Hazardous Substances) Regulations 2017

[3] These include, for example, AS 4114 workrooms, another reference to Australian Standards.

(3) Despite subclause (1), a class 3.1A, 3.1B, or 3.1C substance to which this subpart applies that is contained in 1 or more packages may be held in a storage cabinet—

(a) if the following requirements are met:

(i) each package does not contain more than 20 L of the substance; and

(ii) the aggregate quantity of all packages of a class 3.1A, 3.1B, or 3.1C substance held in the storage cabinet does not exceed 250 L; and

(iii) the storage cabinet is—

(A) constructed and installed in accordance with sections 4.9.2 and 4.9.5 of AS 1940:2017; or

(B) constructed, installed, independently tested, and certified in compliance with BS EN 14470-1:2004, for a storage cabinet that has a 60-minute or higher fire-resistance rating; or

(b) in accordance with a relevant safe work instrument.

Not only is there a requirement for a maximum quantity and for maximum container sizes in AS 1940, but the requirements for the cabinet itself are that it is "constructed and installed in accordance with sections 4.9.2 and 4.9.5 of the Australian Standard 1940."[4] The requirements include:

- the steel critical to the structural integrity of the cabinet must not melt at temperatures less than 850 C;
- doors must be self-closing, close-fitting and held shut automatically; and
- other specific features.

In short, the cabinet is a fire-resistant structure whose doors will remain shut in a fire – nothing impacting the structure or operation of the doors will fail or melt in the heat of a fire which may cause them to open. The doors will also automatically close when not held open. One can understand why the standards are explicit – there is little point having latches on the doors, for example, that will melt below the temperature required by the standard if the potential consequence is that the cabinet doors will open during a fire.

When is a yellow cabinet not a compliant cabinet? When it doesn't meet the requirements in section 4.9.2 of AS 1940.

DGC estimates that up to 30% of the installed cabinets in use today do not meet the requirements of AS 1940 for several reasons:

- their design is flawed for various reasons;
- through wear and tear and poor maintenance, the cabinets have ceased to operate as they are required to (especially doors do not close automatically); and
- modifications made by the PCBU's – for example, removing the lowest shelf and using the bottom of the cabinet for storage of flammable liquid containers, thereby defeating the requirement that a space at the bottom of the cabinet is dedicated to acting as a receptacle for any liquid which leaks from the containers stored above.

On many occasions, we have inspected cabinets that are better suited to be bookcases because they are so structurally deficient that they will never meet the requirements of AS 1940. Some cabinets with automatically closing doors which are malfunctioning have been quickly fixed through some long-overdue maintenance – an inadequately-maintained cabinet will be just as ineffective in a fire as a "bookcase." Every cabinet needs to be inspected against the requirements in the standard – this is very much in the best interests of the PCBU.

As compliance certifiers, we have an obligation to be satisfied that "the requirements of Part 11" have been met before issuing a location compliance certificate. It may seem to trite to write that a compliance certifier needs to:

- inspect storage cabinets used to store flammable liquids to check whether they comply with the requirements in sections 4.9.2 of AS 1940 (specifically referenced in regs 11.11 and 11.29);
- test the closing mechanism of the cabinet doors; and

[4] Copyright precludes including a copy of the extract from AS 1940

- look inside the cabinet – not only to check key compliance requirements but also to ascertain whether incompatible substances are stored therein and to check total quantities and container sizes.

2. Other Australian standards incorporated into the Regulations

There are many instances where the Regulations specifically incorporate Australian Standards – some of the standards are extremely long (more than 100 pages) and, therefore, this approach prevents the Regulations from becoming extremely voluminous. For example, AS 60079 contains detailed information in relation to hazardous atmosphere zones with which the PCBU must comply pursuant to reg 10.6 - the devil lies in the detail in the standard. This is an example of an apparently benign provision has considerable complexity on account of the very detailed standard which is effectively incorporated into the Regulations. Reg 10.34 also requires a compliance certifier to verify that the hazardous area is maintained in accordance with reg 10.6 (and, thus, by extension, the requirements of AS 60079). This is directly analogous to references to AS 1940 cabinets in Part 11.

Thus, there are multiple examples similar to the compliance requirements that are associated with AS 1940 cabinets. The standards are exact, the obligations of the PCBU are clearly defined (if contained in standards they do not have and have never seen) and the obligations of the certifier to "own the detail" and withhold certification until the requirements have been met is a common feature of how the regulatory regime has been established.

The fact that the detail exists in places where 90% of PCBUs will never look leads us to a very important role that the regulator needs to perform.

3. Implications of non-compliant 'AS 1940' Cabinets

Implication #1 – Insurers can be expected to pay attention to compliance with the rules and the factors which caused damage

We have heard many times comments by PCBUs with non-compliant cabinets that their insurers appear to have no issues with their cabinets. Few insurers trifle themselves with such details when they collect the insurance premiums and nor need they – compliance is the obligation of the PCBU, not the insurer. Most insurers can be expected to fully investigate the cause of a fire when a workshop or factory burns down. This is when compliance records and practices will become of critical importance.

Implication #2 – You may be creating a death trap for a fire and emergency person

At least one expert has warned us and WorkSafe of the dangers of yellow cabinets in the workplace that look from a distance like an AS 1940 cabinet but are not. In his words[5]:

> *It appears that WS have put the onus on the purchaser (PCBU) to buy the correct cabinet which complies with AS1940. The PCBU unknowingly buys a non-compliant cabinet which is an unsafe product. Unsafe products are a Worksafe responsibility.*
>
> *The fire service personnel are the most vulnerable victims who may be hurt or killed because of these unsafe cabinets. Any fire which breaks out in a premise during the day has a far greater chance of being snubbed out by employees…But... The fire fighters who attend a fire at night time, where there is a non-compliant cabinet, full of 200 Litres of petrol and some Class 3 formaldehyde, put themselves at huge risk as the heat enters the cabinet to form a gigantic explosion which a non compliant cabinet probably will not contain.*
>
> *Imagine this...The fire fighters are kitted up and go inside the burning building, they see a yellow cabinet through the smoke, the room temperature is 220 degrees C , The fire fighters assume the*

[5] Reproduced here with the author's consent. The quote has also been shared with WorkSafe.

cabinet complies with AS1940, therefore they know the product inside is safe as the training they have been given has proven it should be. It is worth mentioning at this point that petrol will combust and explode at 230 Deg C. Not that hot when you consider AS1940 requires the construction of all materials of an AS1940 cabinet to not melt at less than 850 Deg C. The problem being that petrol igniting into a huge fireball at that low temperature will require all oxygen it can get and simply suck up all the oxygen in the room including from the fire fighters' lungs.

DGC's certifiers are highly cognisant of the critical roles that cabinets perform and the need to be diligent when inspecting them. Auckland has killed firemen before and the Royal Commission of Inquiry into the ICI fire is essential reading for any who want to dispute the death trap they are leaving for some of New Zealand's finest and bravest people. FENZ attends more than 800 incidents annually involving hazardous substances. The situation with non-compliant cabinets looms as an unwelcome game of Russian roulette for the unsuspecting fire fighters.

4. WorkSafe's approach is dangerous and wrong

The quote above makes the danger clear. WorkSafe's approach to the issue of compliant and non-compliant cabinets purports, for some strange reason, to remove consideration of cabinets from the responsibilities of certifiers while simultaneously largely turning a blind eye to non-compliance. We repeat – the Regulations are clear; also the requirements in AS 1940.

Regulation 10.34 provides that:

(1) A PCBU with management or control of a hazardous substance location where class 2.1.1, 2.1.2, or 3.1 substances are present must ensure that the location has a current compliance certificate certifying that—

…

(j) the requirements of Part 11 are complied with;

These words are clear and unambiguous. A compliance certificate can only be issued by a compliance certifier when the requirements of part 11 are complied with.

We asked WorkSafe this question:

Does WorkSafe believe that compliance is required in relation to AS 1940 cabinets, before they are factored into workplace audits conducted by compliance certifiers, or is it adequate to be a coloured cabinet? Are certifiers, in WorkSafe's opinion, required to open them to verify compliance or not?

WorkSafe's responses were:

There is a requirement pursuant to Reg 10.34 of the Regs, for a compliance certifier to ensure that the requirements of Part 11 of the Regs are complied with. This will involve a compliance certifier testing, checking and/or any other actions that are necessary to confirm compliance with the relevant regulation.

Further guidance on the requirements is available in the performance standards.

*The obligation to ensure that cabinets are constructed and installed in accordance with the relevant regulations, **rests with the PCBU** with the management of control of the hazardous substance(s). This includes storage cabinets as mentioned in your correspondence. (refer to the duties set out at Regulations 11.11 and 11.29). (emphasis added by DGC)*

WorkSafe's first two paragraphs are accurate. However, in relation to the third paragraph, almost every provision of the Regulations places obligations on PCBUs and, therefore, WorkSafe's statements are entirely redundant; however, the paragraph does convey WorkSafe's attitude that the construction aspects

of AS 1940 cabinets are solely the PCBU's responsibility and not for the certifier to verify.

WorkSafe's approach can also be shown by how it has dealt with complaints about defective cabinets or about what certifiers have not done during inspections, as demonstrated by the following examples.

In relation to **Auckland Workplace A**[6]:

- The cabinets were not compliant when we inspected them
- DGC notified WorkSafe of its refusal to issue a compliance certificate[7]
- The PCBU was issued a compliance certificate by another certifier (Certifier "B")
- The cabinets remained non-compliant after this certificate was issued - we received a report from an expert shortly after[8]
- We made a complaint about Certifier "B"
- We alerted WorkSafe to the fact that the cabinets were exactly the same and in the same defective state after the compliance certificate was issued by Certifier B.

We have obtained relevant WorkSafe correspondence which shows that, despite (i) the location being within a 20-minute drive from a WorkSafe office and (ii) WorkSafe has an inspectorate whose job it is to inspect workplaces:

- WorkSafe never inspected the cabinet;
- the WorkSafe inspector relied upon the fact that a certificate had been issued to fully resolve any concerns about the inadequacy of the cabinet; and
- the complaint about certifier B was closed out by the next WorkSafe inspector relying on what his colleague had done (which was to rely entirely on the assurance from the PCBU).

Thus, our complaint that Certifier B had certified a defective cabinet was resolved by WorkSafe relying entirely on the fact that Certifier B had issued a compliance certificate. That is farcical. We are certain the cabinet is and was non-compliant with the requirements of AS 1940. If WorkSafe's perspective is that it is the PCBU's responsibility to ensure the cabinet meets the structural requirements, someone from WorkSafe still should have inspected the cabinet – to not do so was irresponsible.

In relation to the **Complaint about Certifier "C"**

- We had a report from a certifier who was present on the day that another certifier did not even open the cabinet which he needed to include in his certification of the workplace
- We made a complaint about Certifier C
- When WorkSafe investigated our complaint about Certifier C, it did not (i) obtain the certifier's inspection report (which must contain photos of his inspection) (ii) inspect the workplace or (iii) interview the other certifier who had observed exactly what Certifier C did (and didn't do) during his inspection.
- WorkSafe concluded that the complaint was "trivial."[9]

WorkSafe has effectively declared through its response that it does not care what certifiers do during inspections when it comes to AS 1940 cabinets. Once again, it did not inspect the cabinet despite having an office within 20 minutes' drive from one of its major offices.

We have scores of situations where a WorkSafe inspector does inspect the cabinet which we have failed as non-compliant and then its junior inspectors reach a contrary opinion to our trained certifiers. In our view, this demonstrates the lack of training the inspectorate has been provided; our certifiers are highly skilled at what they do and inspect cabinets every week of the year. If our certifiers are not skilled and competent,

[6] We have the names of the PCBU and WorkSafe representatives, however the issue is WorkSafe not its junior staff.
[7] This is the legal obligation of the certifier in such circumstances.
[8] The cabinets were exactly the same and the deficiencies had not been addressed.
[9] There were several matters which the WorkSafe investigator failed to understand – this is a topic for a further explanatory memorandum we have in draft.

WorkSafe ought to be investigating them thoroughly – they haven't, which leads to the conclusion that WorkSafe knows about the lack of competence in its inspectorate, yet has done nothing about it. Someone has to be wrong when we and WorkSafe have diametrically different answers.

Implications from "Auckland Workplace A and the Complaint about Certifier C and other experience from the field are that:

- WorkSafe does not regard AS 1940 cabinets as of any importance
- WorkSafe does not regard it as a certifiers' job to thoroughly inspect cabinets holding flammable liquids.

5. WorkSafe's broader failings relating to AS 1940 cabinets

The performance standards require a certifier to verify "the standard to which the cabinet is constructed." DGC's view is that more than 30% of the cabinets that can be bought in New Zealand, including via the internet from foreign suppliers, will never comply with AS 1940 regardless of the sellers' representations that the cabinets are "AS 1940 compliant." As the saying goes, a pig with lipstick is still a pig.

There are a large number of pigs which are currently flying on account of the large number of cabinets which a PCBU can purchase which are non-compliant and the dangers this causes. Cabinets can be purchased online from overseas directly or purchased from manufacturers and suppliers operating in New Zealand. **Aside from NZ's consumer law, the supply of cabinets is unregulated**. A PCBU who has paid a foreign supplier will struggle to get compensation, yet has likely innocently purchased a cabinet intended to comply with AS 1940 – a standard that he has likely never read. In other cases, domestic suppliers have pasted into the inside doors of their cabinets "Compliant with AS 1940" when the cabinets are clearly not so.

Further, whilst the Regulations preclude a compliance certifier from conflicts of interest, we are aware of several certifiers who either have sold cabinets in the past or continue to do so. Certifiers acting as agents in the sale of non-compliant cabinets are certifying them as complaint. This is about as significant a conflict as one could create for oneself. WorkSafe must be aware of this, yet has taken no action that we are aware of.

In summary, unscrupulous or unknowing suppliers and their counterparts operating as compliance certifiers are profiting in an unregulated and unpoliced marketplace. WorkSafe must be aware of the issues, yet has done nothing about them. This is precisely the type of situation in which proactive regulation by a regulator is in the best interests of the consumer/ PCBU. It will also greatly assist in achieving better workplace safety – this is WorkSafe's mandate.

By contrast, the supplier of a tank which is to used to hold hazardous substances (petrol, LPG, diesel) must (i) be an approved tank manufacturer and (ii) have an approved design certificate for the tank it intends to supply and (iii) a new tank can only be certified when there is evidence of both. All these controls could and should exist for other critical safety infrastructure like AS 1940 cabinets.

WorkSafe has done precisely nothing that we are aware of to:

- fully investigate the issues;
- consider regulating the marketplace (and making that recommendation to MBIE);
- crack down on certifiers;
- alert PCBUs to the risks in the marketplace; or
- otherwise address the issues.

Regrettably we can see many parallels with what WorkSafe did in the events leading up to the Whakaari Island disaster, especially because all the calls for action were right under its nose then just as they are now.