IN THE HIGH COURT OF THE REPUBLIC OF SINGAPORE

[1998] SGHC 201

Suit 2507/1996

Between

Metro Pte Ltd

… *Plaintiff*

And

Estee Lauder Cosmetics Pte Ltd

… *Defendant*

GROUNDS OF DECISION

Version No 1: 29 Oct 2026 (23:45 hrs)

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Metro Pte Ltd v Estee Lauder Cosmetics Pte Ltd

[1998] SGHC 201

Suit 2507/1996
Warren Khoo L H J
12 June 1998

1 **Judgment:**

2 **CAV**

3 1. This is a claim for damage and loss caused by a fire which occurred in the early hours of 23 August 1995 in the Metro Department Store in the Paragon Shopping Centre on Orchard Road. The fire was largely confined to a booth used for the sale and promotion of Estee Lauder cosmetic products, but, as to be expected, the heat, smoke and soot escaped outside the booth and, it is alleged, caused damage to merchandise outside the booth, in addition to damage to and loss of goods inside the booth.

4 2. The booth in which the fire occurred was one of a cluster of four booths, each used for the sale and promotion of cosmetic products of a well-known name. The arrangement between Metro and the defendants for the sale and promotion of Estee Lauder products was that the products would be sold in bulk to Metro. The defendants would provide their employees, who undoubtedly had the requisite training and product knowledge, to man the booth

and to conduct the sale and promotion. The defendants' employees also managed the stock for the plaintiffs.

5 3. It is alleged that the fire was caused by the overheating of a radio set or the accompanying converter-transformer, both of which were installed in a cupboard in the defendants' booth. The equipment had been brought on the premises when the booth was renovated in 1992 to enable the defendants to provide facial treatment to customers. The equipment was part of a sound system meant to provide background music to entertain the customers undergoing such treatment. The radio set chosen was one normally used on motor-cars, and it was necessary to have the converter-transformer to convert and step-down the power supply from the mains to that appropriate to a car radio. I shall from now on refer to the converter-transformer simply as the transformer. The radio and transformer were installed on a shelf in a free standing cupboard. The speakers were fixed to the ceiling of the booth. There were no doubt cables connecting the radio with the speakers.

6 4. In 1994, the defendants ceased providing facial treatments. They ceased to use the radio to entertain their customers. That, of course, does not mean that the defendants' staff would not use it at all. The radio and transformer were left on the shelf, and they were left connected to the main socket on the wall. The general lay-out of the Estee Lauder booth is shown in a sketch annexed to Mr. Pointon's report, reproduced and annexed to this judgment. The free standing cupboard shown in this sketch is the cupboard I have referred to. Note also the area shown as the work surface, as reference will be made to it.

7 5. Now, a few words about the electrical connections. It is roughly as follows. The defendants' booth adjoined the Elizabeth Arden booth. There was a plasterboard partition on the Elizabeth Arden side. It is not absolutely clear,

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but from Mr Pointon's evidence at the trial, it would seem that on the defendants' side, there was also a partition board, although what it was made of (plasterboard or some other material) was not made clear in evidence. Mr Pointon was not able to see much of this other partition board after the fire.

8 6. There was an electrical panel mounted on the Elizabeth Arden side of the plasterboard. The incoming cables from the mains carrying household supply at 220 volts were routed through the 16-amp miniature circuit breakers (MCBs) to various parts of the two booths to serve various outlets. The majority of the cables from the panel were routed within the space between the two partition boards. One lot of cables lead to transformers in the roof void which served the halogen lights on the ceiling of both booths. Another lot lead to a wall socket on the skirting at near floor level of the defendants' booth. The socket had two outlets designed to take those square-pin 13-amp plugs that we are all familiar with.

9 7. At the time of the fire, both outlets were in use, with plugs in place. One outlet served a computer used by the defendants, and the other, the transformer and radio. It is common ground that at the time of the fire both sockets were in the "ON" position. It is also undisputed that the fuses in the plugs were intact from the fire.

10 Cause of fire

11 8. Mr Pointon, of the incidents investigation firm of Dr J. H. Burgoyne & Partners Ltd., visited and inspected the site shortly after the fire on 23 August. He visited it again on the 24th. He also examined items that the fire brigade had taken away from the premises, including the remains of the transformer and radio. Mr Pointon was called by the plaintiffs as their expert witness. His

evidence is well summarised by counsel for Metro, and I gratefully adopt that summary.

12 Pointon's evidence

13 9. Mr Pointon found 2 areas of what he calls "low-level" damage, meaning, as I understand it, not very severe damage as far as fire damage goes. One was at the work surface and the other was at the free standing cupboard. He noted that the area around the work surface was less severely damaged than the area around the free standing cupboard. He describes the degree of damage in the two areas as follows :

> *"The damage to the work surface was relatively superficial, involving the melting of plastic components and the surface charring of wood. Cupboards above this area were more severely charred but were still recognisable and in position. The other area of damage was more severe with the total destruction of a free standing wooden cupboard and the collapse of the plasterboard panelling in adjacent areas. The area in the roof void above this area was also severely damaged."*

14 10. On the basis of the general pattern of the fire damage, Mr Pointon concludes that the fire started at a high level near to or above the cupboard and spread upwards and sideways from this location. Mr Pointon thinks that the damage to the work surface area was the result of fire spreading to this area.

15 11. Mr Pointon discounts the possibility that the fire might have started above the plasterboard ceiling since the damage to the wooden roof structure was not as severe as damage to the wooden cupboard. He discounts the possibility of the careless disposal of lighted cigarette butts, since, according to witnesses he interviewed, no one had smoked in the room on that day and there was no wastepaper bin in the area around the cupboard. Mr Pointon thinks that 5 hours between the last occupation and the discovery of the fire was too long

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for a fire smouldering in this manner, given the type of materials present. He discounts the halogen lights as the source of the fire, as according to witnesses they had been switched off. He also discounts the possibility that the fire could have started from a fault in the cables or electrical panel. I shall refer to this in greater detail later.

16 12. After eliminating or discounting all these possibilities, Mr Pointon concludes that the only potential ignition source was the radio and the transformer. It was his view that one of these must be the cause of the fire. He says in his report :

> *"The only remaining potential ignition source is the car radio and AC/DC converter and it is my view that one of these must be the cause of the fire. The occupiers of the room were uncertain of when the unit was last used and it is clear that the unit had not been inspected or checked for a period of weeks or months. There is, therefore, no reliable witness evidence regarding the position of the switches on the converter and radio. The witnesses were certain that the plug to this system was left switched on, and the cable up to the switch on the converter was therefore live at the time of the incident. It is, therefore, my view that this fire is the result of either a fault on the cable to the unit, or a fault on the switch on the converter, or that the converter and possibly the radio were left switched on, and either overheated or developed a fault. The degree of damage to the remaining components were too severe to distinguish between these possibilities."*

17 The Transformer hypothesis

18 13. The hypothesis that the transformer was the source of ignition involves the supposition that it had been left switched on, and that there were materials around it in the shelf which enabled heat generated by it to build up to a temperature sufficient to ignite the materials around it, and start a fire that then spread. A transformer of the sort in question consists of a copper wire coil wound around an iron core. The wire winding has its own insulation, which consists of a lacquer varnish coating. The winding as a whole is additionally

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protected by a covering of a cloth-like material. The debate about the hypothesis that overheating of the transformer caused the fire involves, in part, the question how high a temperature the transformer copper winding itself can withstand before the lacquer varnish melts or the cloth-like protective wrapping around it gets incinerated. The point, as I understand it, is that both the varnish and the wrapping are insulation materials, and, particularly if the varnish melts, the bare copper wire loops would be in contact; there would be a short circuit, and that would trigger the MCB or the fuse to shut down the electricity supply. Mr Pointon did not have the data, and much of the cross-examination of his evidence was conducted on the supposition of a temperature of 300 or 350, or 400C at which either the varnish melts or the outer wrapping is burnt up, and at which any combustible material present immediately around or near the transformer might ignite, the time it takes for such combustible material to ignite depending on the distance it is from the heat source and no doubt the nature of the material.

19 Dr Jimmy Chen’s evidence

20 14. As Mr Pointon readily acknowledged, Dr Chen knows considerably more about transformers than he does. Dr Chen holds a doctorate degree in Electrical Engineering from the University of Manchester. He was at one time Professor of Electrical Engineering at the University of Singapore. More significantly in the context of this case, he was for a time a senior transformer designer with Ferranti Ltd. England. He has also done research into and published papers on fire engineering. He has held public positions in Singapore related to fire safety.

21 15. Dr Chen entertains grave doubts about the transformer as the source of the fire for the following reasons. First, if there is a short circuit of the

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transformer, this would cause the flow of a heavy short-circuit current of an estimated 16.6 amperes and the 13-amp fuse in the power plug for the transformer would blow. However, the evidence is that although the plug had been left in the "ON" position (meaning the cable to the transformer was live), the fuse, as Mr Pointon found, had remained intact. This goes to support the view that there was no short circuiting of the transformer. I shall deal with this point, and the controversy over it, in a moment.

22 16. Secondly, if there is a short circuit in the transformer, one would expect to see the copper winding all twisted together; there would be a band of damage similar to that caused by arcing. However, the remains of the transformer, which I have beside me as I write this judgment, and as both Mr Pointon and Dr Chen agree, do not show any such distortion or damage.

23 17. Thirdly, if there was an internal overheating of the copper winding, its lacquer varnish coating would have melted. However, the remains of the transformer show that the varnish has not been affected; it has still its normal shiny coppery appearance.

24 18. Fourthly, if there is an internal heating of the copper winding, the damage to the external wrapping of the winding could be expected to be fairly uniform. However, Dr Chen’s evidence, supported by one’s own inspection of the exhibit, is that the insulation wrapping on the top part of the winding almost completely disappeared, but the insulation wrapping on the bottom side of the winding was only partially burnt. Furthermore, the wrapping on the two sides of the winding, sandwiched between the winding and the core, appears to be quite unaffected. In short, there is no uniformity of damage to the various parts of the insulation wrapping that one would expect to see on the hypothesis of an overheated transformer winding. The pattern of damage of the insulation

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wrapping points rather to the transformer having been attacked by fire originating from a source outside it, the more exposed parts of the transformer winding being more damaged by heat from such external source than the less exposed.

25 19. Finally, the overheating hypothesis requires that the heat build-up be to a degree which would ignite combustible material present in close proximity to the transformer. It is unlikely that this requirement could be met in this case. Firstly, a transformer of the kind in question by design does not generate much heat. Secondly, the melting point of the lacquer varnish coating of the winding is estimated to be of the order of 180 C and that of the wrapping to be of the order of 200 to 240 C. When temperatures like these are reached, the varnish coating melts, the insulation on the copper wire is lost, and a short circuit results, and the heat build-up ceases. This means that these are the maximum temperatures that the transformer could reach. The hypothesis would require that there are materials placed in the vicinity of the set which could ignite at these temperatures.

26 20. There is no evidence that there was any combustible material in close proximity to the transformer unit. In fact, the evidence of Joanna Lee, Estee Lauder's supervisor, is to the contrary. She says that there was nothing in the shelf in which the transformer and radio were left. Even if Joanna's evidence is discounted, as the plaintiffs say it should be, and one assumes that some materials, such as brochures and cosmetic stocks might have been stored there, there is still no evidence as to the temperatures required to ignite such materials. Joanna's evidence is that the cosmetic stocks in the cupboard were mostly cream in glass bottles and face powder in plastic bottles. These are not easily combustible. Mr Pointon's photographs show quite a few of these things, including some in the remains of the cupboard, intact after the fire.

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27 The fuse and MCB controversy

28 21. I said earlier that there is a controversy over Dr Chen's proposition that if there was a short circuit in the transformer, the fuse in the 13-amp plug would have blown as there would have been a surge of current of the order of 16.6 amperes.

29 22. The plaintiffs seek to deny the significance of the fact that the 13-amp fuse did not blow. To appreciate what follows, as stated above, there was an electrical panel, upstream as it were, with a bank of MCBs all rated 16-amp. It is in evidence (as shown in a photograph Exhibits P-2 taken by Mr Pointon) that three of the MCBs were in the tripped position (with the switch down).

30 23. Plaintiffs' counsel showed Dr Chen a graph purporting to be part of a British Standards specification showing the behaviour of a 13-amp fuse. Counsel got a concession from Dr Chen that according to this graph, a 13-amp fuse would not blow when it was subjected to a 16.6-amperes current that Dr Chen postulated would be caused by a short circuit of the transformer. He also got Dr Chen to concede that even at 20 amperes, a 13-amp fuse would not blow, but according to a graph Dr Chen himself had produced, a 20 amperes current would trip a 16-amp MCB.

31 24. So the plaintiffs contend that a short circuit could have occurred in the transformer or the radio resulting in a current of 20 amperes which would then trip the 16-amp MCB without tripping the 13-amp fuse.

32 25. It does not seem to me that this evidence of the graph is all that helpful. The graph relates apparently to a specification proposed in 1973. There is no textual explanation of the specification. There is no evidence that the fuse

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of this plug corresponds to the fuse whose characteristics are depicted in the graph. Dr Chen made it clear that the concessions he made were on the basis of what was shown in the graph. He also said, and I think one can sympathise with him, that a tolerance of such a magnitude for a fuse (i.e. not blowing even at 20 amperes) is just too much.

33 26. I must say, in the absence of any explanation, I find it rather difficult to understand why the same current could blow a device with a higher rating (16 amps) first before blowing one with a lower rating (13 amps).

34 27. In any event, on the factual level, there is no evidence that any of the three MCBs that tripped was linked to the transformer - radio circuit. They could well have been connected to the cables on which arcing was found (of which more later). The controversy loses its meaning if none of the tripped MCB was in the transformer-radio circuit.

35 28. The controversy arose from Dr Chen’s hypothesis that the estimated current in the event of a short circuit was 16.6 amperes. As Mr Pointon points out, there is no telling how much current a short circuit can produce. Dr Chen was not asked for the reasons for his estimate of 16.6 amperes. If the short circuit current exceeds, say, 20 amperes, the entire controversy also falls away on that count.

36 The car radio hypothesis

37 29. The radio was presumably connected to the transformer. Its remains show that it was a set that combined a radio and cassette player. It had a printed circuit board ("PCB") at the bottom, and other components above the board. The whole thing was enclosed in a metal case, with ventilation holes on the top side.

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Mr Pointon says that a short circuit on the PCB could have set it afire, and that the flames could have escaped through the ventilation holes and ignited combustible materials which supposedly were on the top of the set.

38 30. Mr Pointon did not in his report deal with the question how a short circuit on the PCB could have led to a fire. Neither did he deal with it in examination-in-chief. Most of his evidence on this comes in cross-examination. So, we do not have as comprehensive and orderly a treatment of the subject from him as might have been hoped.

39 31. Summarising, I hope correctly, what he says, it seems to be this. A short circuit could either be due to two bare wires, which in the case of wires on a PCB, would be mere millimeters apart, touching each other, in which case it is a full short circuit. Alternatively, it could be only a partial short circuit, where one wire alone has a break, and electricity goes from one end of the break to the other across a track on the board. A partial short circuit could develop into a full circuit. There is no telling how long it will take. It could be anywhere from milliseconds to hours. Instead of developing into a full short circuit, however, the partial short circuit could burn a hole in the PCB, and the short circuit would just fizzle out to nothing. Mr Pointon says that even a partial short circuit can cause a fire to break out on the PCB without developing into a full short circuit.

40 32. Dr Chen does not agree with the view that a short circuit in the PCB of the radio set could have caused the fire. He says, and Mr Pointon agrees, that a complete short circuit here would have the same effect on the socket plug fuse or the MCB that a short circuit in the transformer would have. We are then back to the problem, discussed earlier, as to why the fuse did not blow, and whether any of the MCBs in this particular circuit tripped. If it was a partial short circuit, according to Dr Chen, there would be smouldering of the PCB, and this would

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have given an unbearable smell. It would have gone on for at least a day or so, and it would have been detected.

41 33. Another reason why Dr Chen says there could not have been a short circuit is that it would be inconsistent with the pattern of the fire damage to the PCB, as seen from its remains. According to Dr Chen, about half of the PCB has disappeared entirely, and the other half which remains is only badly charred at the edges. If there was a short circuit resulting in a flare up, the entire PCB, which was made uniformly of the same material, would have gone, or would have been burnt to the same extent. The fact of this uneven fire damage tends, according to Dr Chen, to support the hypothesis that the PCB damage was caused by fire from outside the unit, the bit that had disappeared having been more exposed to the fire than the bit that remained.

42 34. Mr Pointon, on the other hand, looking at the same piece of debris, says that what remains of the PCB was largely the parts that were more fire retardant, such as resistors, and, in any event, what remains has been burnt to a crisp, and not just charred on the edges as Dr Chen says. So, Mr Pointon says, you cannot draw the sort of conclusion Dr Chen draws from the state of the debris.

43 My views

44 35. Looking at the debris of the PCB myself, it seems to me as a layman that Dr Chen has perhaps understated the degree of fire damage it has undergone. It seems to me that it has undergone quite deep-seated heat attack, and Mr Pointon is closer to the mark when he says it has been "burnt to a crisp".

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45 36. Be that as it may, I think that there are serious gaps in Mr Pointon's hypothesis. First and foremost, it assumes a short circuit, partial or full. But there is no reason why one should assume that. First, although a car radio is normally used on a car, without the need for a transformer, there is nothing inherently dangerous in using one indoors in the manner it was used in this case. The radio had been there since March 1992. It is not certain what make it was, but it was apparently one of those Japanese brands commonly found on the market. There is really no reason to think that it should suddenly develop a short circuit, let alone a short circuit which leads to a fire. There is no evidence that car radios have a tendency to flare up while in use.

46 37. Secondly, the fuse did not blow, and it is not established that the MCB that serves this circuit tripped. If a short circuit did develop, in all probability the fuse would have blown, or the relevant MCB would have tripped. The defence theory of a flare up without tripping the MCB or blowing the fuse seems to me to be pushing possibilities to their theoretical limits. I say so because the PCB is, I am told, made of fibre glass with a thin plastic coating. It has not been shown to be a particularly combustible sort of material.

47 38. Furthermore, even if it catches fire, there are other components of the radio set sitting on a metal plate between the PCB and the ventilation holes on the top-side of the unit. The flame or the heat would have to escape through all these and then to have to catch combustible materials close above the unit. But, as stated earlier, there is no evidence of the presence of such materials. With all these imponderables, it seems to me that, in the absence of an actual demonstration, it is difficult to accept the hypothesis as anything more than a hypothesis.

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48 39. It seems to me that the reasons that Dr Chen gives for discounting the transformer or the car radio as the probable source of the fire are generally sensible in the light of what is known. I am inclined to accept them, and rule out the overheating or short-circuiting of these items of equipment as the probable cause of the fire.

49 Cable fault as a possible cause

50 40. As stated above, the electrical panel (with the MCBs) which supplied electricity to the Estee Lauder booth was fixed to the other side of the common wall. Main cables were routed from the main supply into the panel and sub-circuit cables led from the panel to the various electrical outlets serving all the booths. Mr Pointon found evidence of arcing across breaks in some of the incoming main cables, as well as in one of the outgoing sub-circuit cables, in both instances about 8 cm from the panel. The insulation of the outgoing cables from the panel was burnt close to the panel.

51 41. The MCB connected to the outgoing broken cable in which evidence of arcing was found, was in the tripped position. The main ELCB for the electrical panel was also in the tripped position.

52 42. Could the arcing along either the incoming cables or outgoing cable have caused the fire? The significance of this question is that these parts of the electrical circuit were installed by Metro, and it is assumed common ground that any fault in these parts of the circuit (i.e. up to the switches within the Estee Lauder booth) cannot be attributed to the defendants.

53 43. Mr Pointon would not rule out arcings as the possible cause of the fire. But he says that the heat of fire, when started, tends to rise symmetrically

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in a V shape, and if an arcing was the point of origin of the fire, you would expect things on both sides of it to have been evenly damaged by the fire. However, this was not the pattern of damage in this case. In particular, the partition on the Estee Lauder side of the common wall was very much more damaged than that on the Elizabeth Arden side. Mr Pointon thinks that the breaks in the cables were more likely the effect of attack by a fire which started elsewhere, rather than the cause of the fire.

54 44. Dr Chen, on the other hand, is of the view that these localised arcings could have caused the fire by igniting combustible materials around them. Dr Chen does not agree that the pattern of damage at or around the point of origin has to be symmetrical. As Mr Pointon himself concedes, it all depends on the nature and quantity of the combustible material in its path.

55 45. Dr Chen does not agree that the breaks in the incoming and outgoing cables were the result of fire attack. He says that the broken cables were bunched together with other cables, and if fire attacked them, it would have attacked them more or less evenly; you would not find just isolated cables being broken, as you find here.

56 46. It seems to me, as indeed conceded by Mr Pointon, that electrical arcing along the cables, particularly the outgoing cable leading to the Estee Lauder booth, as the cause of the fire, cannot be ruled out. The suggestion is supported by the fact that the area of the damage near it, as noted by Mr Pointon himself, is quite severe. It is also a fact that arcing generates high temperatures, of the order of 2,000C to 3,000C. In that respect, it is a much stronger candidate as the cause of the fire than the transformer or the car radio. However, no one can be sure that it was actually the cause. The cables, we are told, were in conduits, although we are not told what the material of the conduit was. The

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heat would have to burn through the conduit and then through the plasterboard partition. The plasterboard is estimated to be able to retard fire for about half an hour. It is known that the MCB connected to the outgoing cable tripped. The question one would ask is whether it was possible for the arcing to have gone on long enough to generate sufficient heat to sustain a fire before the MCB tripped and cut off the energy. Such questions were not explored.

57 47. So, although the arcing in the cables cannot be ruled out as a possible cause, it is not proven as the cause.

58 The res ipsa loquitur argument

59 48. So, the scale remains even whether the cause of the fire has been proved as between one contention and the other. The plaintiffs seek to tilt the balance by resorting to the doctrine of res ipsa loquitur.

60 49. The plaintiffs' argument, simply, is that the fire was caused by either the car radio or the transformer; they were under the sole control of the defendants (through their employees); car radios and transformers do not ordinarily burst into flames unless it is due to someone's negligence; the fact that they did in this case connotes negligence on the defendants' part, and it is up to the defendants to provide a reasonable explanation how the accident could have occurred without their negligence.

61 50. With respect, it seems to me that there is a vicious circle in the plaintiffs' argument. It assumes that the car radio or the transformer caught fire ("burst into flames"). This is something that has not been proved.

62 Conclusion

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63 51. In the result, the case of negligence against the defendants has not been shown on a balance of probabilities. The plaintiffs' claim is dismissed with costs.

64 Warren L H Khoo

65 Judge

Warren Khoo L H J

Arthur Quay and Leong Wai Nam for the plaintiffs
Chan Leng Sun for the defendants

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