

# 2hr/4hr Cooling Rule

## Why do we need to follow the 2hr/4hr Cooling Rule?

Think about the temperature danger zone. All temperatures between 60°C – 5°C.

Food at 60°C is safe.

Food at 5°C is safe.

The temperatures in between are not safe but temperatures above 60°C and below 5°C are safe.

Even at safe temperatures we do not want to store or hold our food for too long.

Even more importantly, we do not want our food to spend time in the danger zone because that is where bacteria grow the fastest.

The temperature danger zone can not be avoided completely. However we can control the time the food takes on its journey from hot, after it has been cooked, to cold.

**Pathogenic bacteria grow quickly in temperatures between 60°C and 21°C.** They grow between 21°C and 5°C too, but reproduce more slowly at those temperatures.

If we don't want the bacteria reproducing in our food while it is cooling then we need to cool the food quickly.

**You only have 2 hours to get the food down from 60°C to 21°C.**  
*(ie a 39°C drop in temperature during Stage 1).*

**Then, you only have 4 hours to get the food down from 21°C to 5°C.**  
*(ie a 16°C drop during Stage 2).*

The total time of cooling must not be more than 6 hours. It can be less not more.

**When cooling food we must control both the time and temperature as the food travels to its safe destination of 5°C.**

## The 2 STAGES of the COOLING JOURNEY

### Stage 1:

After cooking, and the temperature of the food drops to 60°C, you have a maximum of 2 hours to drop the temperature further to 21°C.

Food temperature must drop to at least 21°C after 2hrs.

Food temperature must not be more than 21°C after 2hrs.



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It is OK for the food temperature to be less than 21°C after 2hrs.

**So, after 2 hours:**

Is it OK for the food to be 19.9°C? YES - it is below 21°C

Is it OK for the food to be 10.1°C? YES – it is below 21°C

Is it OK for the food to be 4.8°C? YES – no need to go to Stage 2 .

Is it OK for the food to be 22.3°C? NO - because that is above 21°C

Is it OK for the food to be 21.1°C? NO - because that is above 21°C

## Stage 2:

After the first 2 hours of cooling when the food temperature has dropped down to at least 21°C ( *after Stage 1* ), you only have 4 hours to cool the food down to 5°C ( *Stage 2* ).

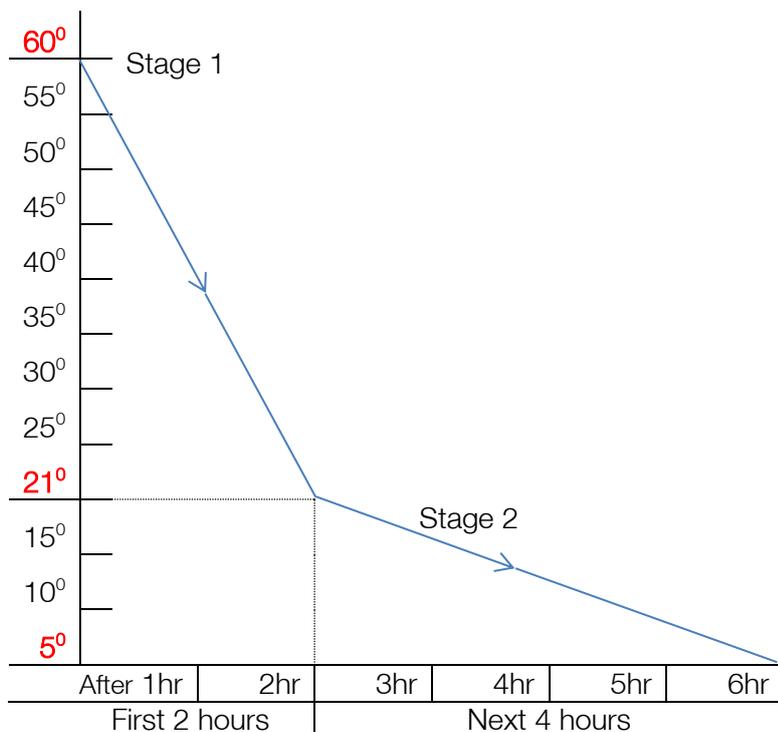
The temperature of the food must not be above 5°C after the 4 hours of *Stage 2*.

It may be less than 5°C, but not more.

**So after 6 hours:**

Can it be 4.3 °C? YES

Can it be 5.3°C? NO



**Stage 1** : must not take any longer than 2 hours; by the end of Stage 1, the temperature must be 21°C or less.

**Stage 2** : must not take any longer than 4 hours; by the end of Stage 2, the temperature must be 5°C or less.

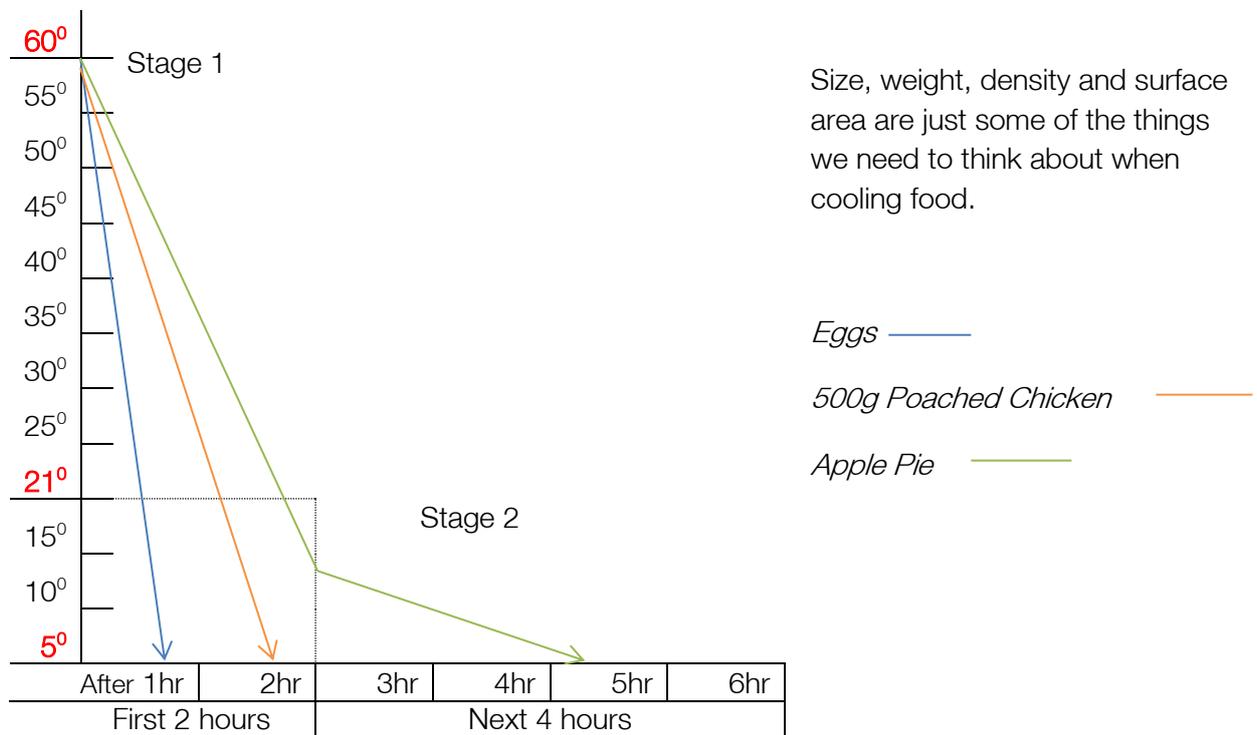
**These are maximum times.**

*You can cool faster but not slower.*



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Example: Boiled eggs can cool from 60°C – 5°C in 40 minutes ! Completely cooled in Stage 1.



Stage 1: Time maximum = 2 hours; Temperature maximum = 21°C.

Stage 2: Time maximum = 4 hours; Temperature maximum = 5°C.

Remember, businesses that sell or provide food in Australia must :

...when cooling cooked potentially hazardous food, cool the food –

- (a) within two hours – from 60 C to 21 C; and
- (b) within a further four hours – from 21 C to 5 C;

Food Standards Code 3.2.2 Clause 7 (3).....and that is the Law.

