

# High pressure gas safety law in Japan

simple overview

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Applicable scope: heat exchanger ...

vessel :  $P(\text{Mpa}) \times V(\text{m}^3) > 0.004$

ex.  $P = 0.2 \text{ Mpa}$

$V > 0.02 \text{ m}^3 = 0.2 \text{ m dia} \times 0.64 \text{ m}$

What items will be controlled?

- Materials      standard materials  
                     $T$  and  $\sigma$  are specified  
                    --> min. thickness of the vessel  
  
                    For He vessel: SUS316L, SUS304L, Cu, Al, ..
- Process        welding method (butt, backing,..) and efficiency
- Min. thickness    calculation equation
- Test method



Fabrication must be proceed as follows:

- 1) complete the design and it must be checked whether the fabrication method follows the specified method structure, welding method etc.

then, start the fabrication.

---- It is not so easy to change the design ----

- 2) during the fabrication, the inspector will visit the factory and confirm whether the fabrication is going as designed

at each fabrication step

material confirmation

welding method and strength confirmation

pressure test

---- It takes longer fabrication time ----

- we have to control the design and fabrication schedule carefully, then we will be able to make cryogenic equipments following the law.

When special material and/or fabrication method must be chosen for the fabrication, we have to have a special permission.

In this case it takes another time for the process.

## Conclusion

It seems that there is no specific safety aspects which may influence the design. But it will be very important to exchange the detailed design information each other if the system is used in Japan.