

FY2002 Product Safety Test Results
“Direct Connection LPG Camping Stove and Canister”

(National Institute of Technology and Evaluation)

NITE conducted safety tests of “gas cooking stoves” which are reduced in size and weight for camping or outdoor use, (hereinafter referred to as “camping stoves”) and “canisters filled with liquefied petroleum gas (LPG)” to be connected to those camping stoves (*1) (hereinafter referred to as “canisters”). These products have labeling indicating precautions including how to connect and to store. However there have been accidents involving the ignition of gas leaking from the connecting sections between the stove and the canister, and canisters exploding in card during transit. These tests were implemented to confirm the safety of these products.

NITE tested 8 sample stoves and 32 brands of their dedicated canisters (12 “normal”, 10 “for cold areas”, 10 “high BTU (British Thermal Unit) gas”).

(1) Results of the repetitive connection/disconnection test for camping stoves and canisters

The action of connecting a stove and a canister was repeated roughly 6,000 times. There were 7 samples for which connection could not be repeated 6,000 times due to connecting screw wear..

Among these, 6 samples showed no gas leak at the connecting section before or after they became not connectable.

However, the remaining sample leaked the gas as the stove and the canister connection became skewed. In this case, the involved user would presumably notice the gas leak as it occurs when connecting the canister to the stove, and it produces a noise and an odor of leaking gas. However users of these products are reminded to exercise great caution.

(2) Results of the pressure test

All sample canisters are confirmed to comply with the designated pressure-resistance required by law (*2).

(3) Pressure-resistance at high temperature

The test revealed that the following canisters could explode at the temperatures shown below:

- ◆ At 70 degrees C : 1 “for cold areas” and 1 “high BTU gas”
- ◆ At 80 degrees C : 8 “for cold areas” and 7 “high BTU gas”

The sample canisters carried instructions to “**store below 40 degrees C**” on the outer surfaces to prohibit storage at high temperatures. Looking at the test results, the designs of these products have taken storage at significantly higher temperatures into account. It is however essential for consumers to handle them as instructed, with due consideration that canisters contain flammable gas, to prevent them from accidental explosions.

(4) Labeling requirement

All sample stoves carried the proper labeling required by the Liquefied Petroleum Gas Law (*3). Also, all the canisters were labeled properly for being exempted from the application of the High Pressure Gas Safety Law.

(*1) In this test, combustion appliances to be screwed directly to “canisters” (=directly connected LPG cooking stoves) are referred to as “Camping stoves”

(*2) Designated values of the deformation load and the burst pressure are defined in Paragraph 2 of Article 4-3 of the “Notice related to the Enforcement Order of the High-Pressure Gas Safety Law”

(*3) Regulations for appliances and labeling required by the "Law concerning the Security of Safety and Rationalization of Transactions of Liquefied Petroleum Gas"