What is claimed is:

1. A water treatment device characterized by comprising:

a pressure device that pressurizes raw water containing organic substances to a predetermined pressure; and

a heating device that heats the raw water pressurized by the pressure device to a predetermined temperature to produce supercritical water or subcritical water and decomposes the organic substances contained in the raw water using the supercritical water or subcritical water, wherein the heating device comprises:

a laser light irradiation device that irradiates laser light towards the raw water pressurized by the pressure device; and

a condensing lens that condenses the laser light irradiated from the laser light irradiation device on a region spaced apart from a channel wall within the channel where the pressurized raw water flows.

2. The water treatment device of claim 1, wherein the pressure device introduces the raw water from a large-bore channel into a small-bore channel of which the cross-sectional area is smaller than that of the large-bore channel to pressurize the raw water.

3. The water treatment device of claim 2, wherein at least a part of the channel wall of the small-bore channel is transparent, and the laser light irradiation device irradiates the laser light on a region within the small-bore channel through the transparent channel wall.

4. The water treatment device of claim 2, wherein the small-bore channel has a

double pipe structure, and a vacuum insulation layer is formed in a space between the inner pipe and the outer pipe of the double pipe structure.

5. The water treatment device of claim 2, wherein the small-bore channel has a double pipe structure, and a heat recovering gas flows through the space between the inner pipe and the outer pipe of the double pipe structure.

6. The water treatment device of claim 2, wherein the small-bore channel has a double pipe structure, and the space between the inner pipe and the outer pipe of the double pipe structure is filled with a filler having voids.

7. The water treatment device of claim 2, wherein a thermal reflection plate is disposed on the channel wall surface inside the channel in the channel wall opposed to the channel wall of the small-diameter channel on which the laser light is irradiated.

8. The water treatment device of claim 1, wherein the predetermined pressure is 1.5 MPa to 100 MPa, and the predetermined temperature is 200℃ to 500℃.

9. The water treatment device of claim 8, wherein the predetermined pressure is 1.5 MPa to 100 MPa, the predetermined temperature is 200℃ to 374℃, and the raw water is in the liquid state.

10. The water treatment device of claim 8, wherein the predetermined pressure is 22 MPa to 100 MPa, and the predetermined temperature is 374℃ to 500℃.

11. A water treatment method comprising:

pressurizing raw water containing organic substances to a predetermined pressure; and

heating the raw water pressurized by the pressurizing to a predetermined temperature to produce supercritical water or subcritical water and decomposes the organic substances contained in the raw water using the supercritical water or subcritical water,

wherein the heating comprises:

irradiating laser light towards the raw water pressurized by the pressurizing; and

condensing the laser light irradiated in the irradiating on a region spaced apart from a channel wall of within the channel where the pressurized raw water flows.

12. The water treatment method of claim 11, wherein in the pressurizing, the raw water is introduced from a large-bore channel into a small-bore channel of which the cross-sectional area is smaller than that of the large-bore channel to pressurize the raw water.

13. The water treatment method of claim 12, wherein at least a part of the channel wall of the small-bore channel is transparent, and in the irradiating, the laser light is irradiated to a region within the small-bore channel through the transparent channel wall.

14. The water treatment method of claim 12, wherein the small-bore channel has a double pipe structure, and the water treatment method further includes causing a gas to flow through the space between the inner pipe and the outer pipe of the double pipe

structure to recover the heat discharged from the inner pipe.

15. The water treatment method of claim 11, wherein the predetermined pressure is 1.5 MPa to 100 MPa, and the predetermined temperature is 200℃ to 500℃.

16. The water treatment method of claim 15, wherein the predetermined pressure is 22 MPa to 100 MPa, the predetermined temperature is 200℃ to 374℃, and the raw water is in a liquid state.

17. The water treatment method of claim 15, wherein the predetermined pressure is 22 MPa to 100 MPa, and the predetermined temperature is 374℃ to 500℃.

WHAT IS CLAIMED IS:

1. A water treatment device characterized by comprising:

a pressure device that pressurizes raw water containing organic substances to a predetermined pressure; and

a heating device that heats the raw water pressurized by the pressure device to a predetermined temperature to produce supercritical water or subcritical water and decomposes the organic substances contained in the raw water using the supercritical water or subcritical water, wherein the heating device comprises:

a laser light irradiation device that irradiates laser light towards the raw water pressurized by the pressure device; and

a condensing lens that condenses the laser light irradiated from the laser light irradiation device on a region spaced apart from a channel wall within the channel where the pressurized raw water flows.

2. The water treatment device of claim 1, wherein the pressure device introduces the raw water from a large-bore channel into a small-bore channel of which the cross-sectional area is smaller than that of the large-bore channel to pressurize the raw water.

3. The water treatment device of claim 2, wherein at least a part of the channel wall of the small-bore channel is transparent, and the laser light irradiation device irradiates the laser light on a region within the small-bore channel through the transparent channel wall.

4. The water treatment device of claim 2 or 3, wherein the small-bore channel has

a double pipe structure, and a vacuum insulation layer is formed in a space between the inner pipe and the outer pipe of the double pipe structure.

5. The water treatment device of claim 2 or 3, wherein the small-bore channel has a double pipe structure, and a heat recovering gas flows through the space between the inner pipe and the outer pipe of the double pipe structure.

6. The water treatment device of claim 2 or 3, wherein the small-bore channel has a double pipe structure, and the space between the inner pipe and the outer pipe of the double pipe structure is filled with a filler having voids.

7. The water treatment device of any one of claims 2 to 6, wherein a thermal reflection plate is disposed on the channel wall surface inside the channel in the channel wall opposed to the channel wall of the small-diameter channel on which the laser light is irradiated.

8. The water treatment device of any one of claims 1 to 7, wherein the predetermined pressure is 1.5 MPa to 100 MPa, and the predetermined temperature is 200℃ to 500℃.

9. The water treatment device of claim 8, wherein the predetermined pressure is 1.5 MPa to 100 MPa, the predetermined temperature is 200℃ to 374℃, and the raw water is in the liquid state.

10. The water treatment device of claim 8, wherein the predetermined pressure is

22 MPa to 100 MPa, and the predetermined temperature is 374℃ to 500℃.

11. A water treatment method comprising:

pressurizing raw water containing organic substances to a predetermined pressure; and

heating the raw water pressurized by the pressurizing to a predetermined temperature to produce supercritical water or subcritical water and decomposes the organic substances contained in the raw water using the supercritical water or subcritical water,

wherein the heating comprises:

irradiating laser light towards the raw water pressurized by the pressurizing; and

condensing the laser light irradiated in the irradiating on a region spaced apart from a channel wall of within the channel where the pressurized raw water flows.

12. The water treatment method of claim 11, wherein in the pressurizing, the raw water is introduced from a large-bore channel into a small-bore channel of which the cross-sectional area is smaller than that of the large-bore channel to pressurize the raw water.

13. The water treatment method of claim 12, wherein at least a part of the channel wall of the small-bore channel is transparent, and in the irradiating, the laser light is irradiated to a region within the small-bore channel through the transparent channel wall.

14. The water treatment method of claim 12 or 13, wherein the small-bore channel

has a double pipe structure, and the water treatment method further includes causing a gas to flow through the space between the inner pipe and the outer pipe of the double pipe structure to recover the heat discharged from the inner pipe.

15. The water treatment method of any one of claims 11 to 14, wherein the predetermined pressure is 1.5 MPa to 100 MPa, and the predetermined temperature is 200℃ to 500℃.

16. The water treatment method of claim 15, wherein the predetermined pressure is 22 MPa to 100 MPa, the predetermined temperature is 200℃ to 374℃, and the raw water is in a liquid state.

17. The water treatment method of claim 15, wherein the predetermined pressure is 22 MPa to 100 MPa, and the predetermined temperature is 374℃ to 500℃.