

What is claimed is:

1. A detection method for air holes in a welding sputtering target material, wherein the detection method comprises the following steps:

5 (1) obtaining images of a welding target material having air holes and a welding target material having no air hole under the irradiation of red light respectively as a reference feature image set for detecting air hole distribution in a welding target material under red light;

(2) recording images of a welding target material to be detected under the irradiation of red light, and comparing the images with the reference feature image set obtained in step (1), to obtain air hole distribution in a welding seam of the welding target material to be detected;

10 wherein in step (1), the obtaining images of a welding target material is to obtain welding seam images of the welding target material and/or welding surface images of the welding target material;

in step (1), the step of obtaining images of a welding target material having air holes under irradiation of red light includes the step of obtaining images of a welding target material having
15 air holes with different sizes, in order to enrich the reference feature image set;

an air holes detection limit of the detection method is as low as 0.01 mm.

2. The detection method of claim 1, wherein the red light in step (1) has a wavelength of 622 nm to 770 nm.

20 3. The detection method of claim 2, wherein the red light in step (2) has a wavelength of 622 nm to 770 nm.

4. The detection method of claim 3, wherein the red light in step (1) has a same wavelength as the red light in step (2).

25 ~~5. The detection method of any one of claims 1 to 4, wherein the obtaining images of a welding target material in step (1) is to obtain welding seam images of the welding target material and/or welding surface images of the welding target material.~~

65 ~~5. The detection method of any one of claims 1 to 54, wherein the recording images of a welding target material to be detected under irradiation of red light in step (2) is to record images of a welding seam and/or a welding surface of the welding target material under irradiation of red light.~~

76. The detection method of any one of claims 1 to 65, wherein the recording images of a welding target material to be detected under irradiation of red light in step (2) is to record images under irradiation of red light while the welding target material to be detected is rotated around a central axis by 360°.

5 87. The detection method of claim 76, wherein the welding target material to be detected is rotated at a speed of 8°/s to 12°/s, and images are recorded under irradiation of red light at a frequency of 1 times/s to 3 times/s.

98. The detection method of claim 87, wherein the process of recording images of a welding seam target material to be detected in step (2) further comprises a step of pausing the rotation
10 for at least 1 second every time the welding target material rotates by 8° to 12°, so as to take an image of a red light irradiation area using a camera.

109. The detection method of any one of claims 1 to 98, wherein the detection method comprises the following steps:

(1) obtaining images of a welding target material having air holes and a welding target material
15 having no air hole under the irradiation of red light in a wavelength range of 622 nm to 770 nm respectively as a reference feature image set for detecting air hole distribution in a welding target material under red light; and

(2) recording images of a welding target material to be detected under irradiation of red light with a wavelength of 622 nm to 770 nm while the welding target material to be detected is
20 rotated around a central axis by 360° at a rotation speed is 8°/s to 12°/s, wherein images under irradiation of red light are recorded at a frequency of 1 times/s to 3 times/s, and the rotation is paused for at least 1 second every time the welding target material rotates by 8° to 12°, so as to take an image of a red light irradiation area using a camera, to obtain air hole distribution in a welding seam of the target material to be detected.

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