

## CORRIGENDA

**Corrigendum to Commission Delegated Regulation (EU) 2015/2420 of 12 October 2015 amending Council Regulation (EC) No 428/2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual use items**

*(Official Journal of the European Union L 340 of 24 December 2015)*

On page 58, item 1C007:

*for:* 'Ceramic powders, non-"composite" ceramic materials, ceramic-"matrix", "composite" materials and precursor materials, as follows:'

*read:* 'Ceramic powders, non-"composite" ceramic materials, ceramic-"matrix" "composite" materials and precursor materials, as follows:'

on page 88, item 1C450.b.5:

*for:* 'N-Dialkyl [methyl, ethyl or propyl (normal or iso)] aminoethane-2-ols and corresponding protonated salts, other than N,N-Diisopropyl-(beta)-aminoethanol (96-80-0) and N,N-Diethylaminoethanol (100-37-8) which are specified in 1C350:'

*read:* 'N,N-Dialkyl [methyl, ethyl or propyl (normal or iso)] aminoethane-2-ols and corresponding protonated salts, other than N,N-Diisopropyl-(beta)-aminoethanol (96-80-0) and N,N-Diethylaminoethanol (100-37-8) which are specified in 1C350:'

on page 105, item 2B201 is replaced as follows:

'2B201 Machine tools and any combination thereof, other than those specified in 2B001, as follows, for removing or cutting metals, ceramics or "composites", which, according to the manufacturer's technical specification, can be equipped with electronic devices for simultaneous "contouring control" in two or more axes:

Technical Note:

*Stated 'positioning accuracy' levels derived under the following procedures from measurements made according to ISO 230/2 (1988) <sup>(1)</sup> or national equivalents may be used for each machine tool model if provided to, and accepted by, national authorities instead of individual machine tests. Determination of 'Stated' positioning accuracy:*

- a. Select five machines of a model to be evaluated;*
- b. Measure the linear axis accuracies according to ISO 230/2 (1988) <sup>(1)</sup>;*
- c. Determine the accuracy values (A) for each axis of each machine. The method of calculating the accuracy value is described in the ISO 230/2 (1988) <sup>(1)</sup> 1 standard;*
- d. Determine the average accuracy value of each axis. This average value becomes the stated 'positioning accuracy' of each axis for the model (Ax Ay...);*
- e. Since Item 2B201 refers to each linear axis, there will be as many stated 'positioning accuracy' values as there are linear axes;*
- f. If any axis of a machine tool not controlled by 2B201.a., 2B201.b. or 2B201.c. has a stated 'positioning accuracy' of 6 µm or better (less) for grinding machines, and 8 µm or better (less) for milling and turning machines, both according to ISO 230/2 (1988) <sup>(1)</sup>, then the builder should be required to reaffirm the accuracy level once every eighteen months.*

- a. Machine tools for milling, having any of the following characteristics:
  1. 'Positioning accuracies' with "all compensations available" equal to or less (better) than 6 µm according to ISO 230/2 (1988) <sup>(1)</sup> or national equivalents along any linear axis;
  2. Two or more contouring rotary axes; or

<sup>(1)</sup> Manufacturers calculating positioning accuracy in accordance with ISO 230/2 (1997) or (2006) should consult the competent authorities of the Member State in which they are established.

## 2B201 a. (continued)

3. Five or more axes which can be coordinated simultaneously for "contouring control";

Note: 2B201.a. does not control milling machines having the following characteristics:

- a. X-axis travel greater than 2 m; and
  - b. Overall 'positioning accuracy' on the x-axis more (worse) than 30  $\mu\text{m}$ .
- b. Machine tools for grinding, having any of the following characteristics:
1. 'Positioning accuracies' with "all compensations available" equal to or less (better) than 4  $\mu\text{m}$  according to ISO 230/2 (1988) <sup>(1)</sup> or national equivalents along any linear axis;
  2. Two or more contouring rotary axes; or
  3. Five or more axes which can be coordinated simultaneously for "contouring control";

Note: 2B201.b. does not control grinding machines as follows:

- a. Cylindrical external, internal, and external-internal grinding machines having all of the following characteristics:
    1. Limited to a maximum workpiece capacity of 150 mm outside diameter or length; and
    2. Axes limited to x, z and c;
  - b. Jig grinders that do not have a z-axis or a w-axis with an overall 'positioning accuracy' less (better) than 4  $\mu\text{m}$  according to ISO 230/2(1988) or national equivalents.
- c. Machine tools for turning, that have 'positioning accuracies' with "all compensations available" better (less) than 6  $\mu\text{m}$  according to ISO 230/2 (1988) along any linear axis (overall positioning) for machines capable of machining diameters greater than 35 mm;

Note: 2B201.c. does not control bar machines (Swissturn), limited to machining only bar feed thru, if maximum bar diameter is equal to or less than 42 mm and there is no capability of mounting chucks. Machines may have drilling and/or milling capabilities for machining parts with diameters less than 42 mm.

Note 1: 2B201 does not control special purpose machine tools limited to the manufacture of any of the following parts:

- a. Gears;
- b. Crankshafts or camshafts;
- c. Tools or cutters;

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<sup>(1)</sup> Manufacturers calculating positioning accuracy in accordance with ISO 230/2 (1997) or (2006) should consult the competent authorities of the Member State in which they are established.

2B201 Note 1 (continued)

d. Extruder worms.

Note 2: A machine tool having at least two of the three turning, milling or grinding capabilities (e.g., a turning machine with milling capability), must be evaluated against each applicable entry 2B201.a., b. or c.'

on page 133, item 3A001.a.5.b.2:

for: 'A resolution of 12 bit or more with an 'adjusted update rate' of equal to or greater than 1 250 MSPS and having any of the following';

read: 'A resolution of 12 bit or more with an 'adjusted update rate' of greater than 1 250 MSPS and having any of the following';

on page 185, items 6A001 to 6A001.a.1 are replaced as follows:

'6A001 Acoustic systems, equipment and components, as follows:

a. Marine acoustic systems, equipment and specially designed components therefor, as follows:

1. Active (transmitting or transmitting-and-receiving) systems, equipment and specially designed components therefor, as follows:

Note: 6A001.a.1. does not control equipment as follows:

a. Depth sounders operating vertically below the apparatus, not including a scanning function exceeding  $\pm 20^\circ$ , and limited to measuring the depth of water, the distance of submerged or buried objects or fish finding;

b. Acoustic beacons, as follows:

1. Acoustic emergency beacons;

2. Pingers specially designed for relocating or returning to an underwater position.

a. Acoustic seabed survey equipment as follows:

1. Surface vessel survey equipment designed for seabed topographic mapping and having all of the following:

a. Designed to take measurements at an angle exceeding  $20^\circ$  from the vertical;

b. Designed to measure seabed topography at seabed depths exceeding 600 m;

c. 'Sounding resolution' less than 2; and

d. 'Enhancement' of the depth accuracy through compensation for all the following:

1. Motion of the acoustic sensor;

6A001 a. 1. a. 1. d. (continued)

2. In-water propagation from sensor to the seabed and back;
3. Sound speed at the sensor;

Technical Notes

1. 'Sounding resolution' is the swath width (degrees) divided by the maximum number of soundings per swath.
  2. 'Enhancement' includes the ability to compensate by external means.
2. Underwater survey equipment designed for seabed topographic mapping and having any of the following:

Technical Note:

The acoustic sensor pressure rating determines the depth rating of the equipment specified in 6A001.a.1.a.2.

a. Having all of the following:

1. Designed or modified to operate at depths exceeding 300 m; and
2. 'Sounding rate' greater than 3,800 m/s; or

Technical Note:

'Sounding rate' is the product of the maximum speed (m/s) at which the sensor can operate and the maximum number of soundings per swath assuming 100 % coverage. For systems that produce soundings in two directions (3D sonars), the maximum of the 'sounding rate' in either direction should be used

b. Survey equipment, not specified in 6A001.a.1.a.2.a., having all of the following:

1. Designed or modified to operate at depths exceeding 100 m;
2. Designed to take measurements at an angle exceeding 20° from the vertical;
3. Having any of the following:
  - a. Operating frequency below 350 kHz; or
  - b. Designed to measure seabed topography at a range exceeding 200 m from the acoustic sensor; and
4. 'Enhancement' of the depth accuracy through compensation of all of the following:
  - a. Motion of the acoustic sensor;

6A001 a. 1. a. 2. b. 4. (continued)

- b. In-water propagation from sensor to the seabed and back; and
  - c. Sound speed at the sensor;
3. Side Scan Sonar (SSS) or Synthetic Aperture Sonar (SAS), designed for seabed imaging and having all of the following, and specially designed transmitting and receiving acoustic arrays therefor:
- a. Designed or modified to operate at depths exceeding 500 m;
  - b. An 'area coverage rate' of greater than 570 m<sup>2</sup>/s while operating at the maximum range that it can operate with an 'along track resolution' of less than 15 cm; and
  - c. An 'across track resolution' of less than 15 cm;

Technical Notes

1. 'Area coverage rate' (m<sup>2</sup>/s) is twice the product of the sonar range (m) and the maximum speed (m/s) at which the sensor can operate at that range.
  2. 'Along track resolution' (cm), for SSS only, is the product of azimuth (horizontal) beamwidth (degrees) and sonar range (m) and 0,873.
  3. 'Across track resolution' (cm) is 75 divided by the signal bandwidth (kHz).
- b. Systems or transmitting and receiving arrays, designed for object detection or location, having any of the following:
1. A transmitting frequency below 10 kHz;
  2. Sound pressure level exceeding 224 dB (reference 1 µPa at 1 m) for equipment with an operating frequency in the band from 10 kHz to 24 kHz inclusive;
  3. Sound pressure level exceeding 235 dB (reference 1 µPa at 1 m) for equipment with an operating frequency in the band between 24 kHz and 30 kHz;
  4. Forming beams of less than 1° on any axis and having an operating frequency of less than 100 kHz;
  5. Designed to operate with an unambiguous display range exceeding 5,120 m; or
  6. Designed to withstand pressure during normal operation at depths exceeding 1 000 m and having transducers with any of the following:
    - a. Dynamic compensation for pressure; or
    - b. Incorporating other than lead zirconate titanate as the transduction element;

6A001 a. 1. (continued)

- c. Acoustic projectors, including transducers, incorporating piezoelectric, magnetostrictive, electrostrictive, electrodynamic or hydraulic elements operating individually or in a designed combination and having any of the following:

Note 1: The control status of acoustic projectors, including transducers, specially designed for other equipment not specified in 6A001 is determined by the control status of the other equipment.

Note 2: 6A001.a.1.c. does not control electronic sources which direct the sound vertically only, or mechanical (e.g., air gun or vapour-shock gun) or chemical (e.g., explosive) sources.

Note 3: Piezoelectric elements specified in 6A001.a.1.c. include those made from lead-magnesium-niobate/lead-titanate ( $\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ , or PMN-PT) single crystals grown from solid solution or lead-indium-niobate/lead-magnesium niobate/lead-titanate ( $\text{Pb}(\text{In}_{1/2}\text{Nb}_{1/2})\text{O}_3\text{-Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3\text{-PbTiO}_3$ , or PIN-PMN-PT) single crystals grown from solid solution.

1. Operating at frequencies below 10 kHz and having any of the following:

- a. Not designed for continuous operation at 100 % duty cycle and having a radiated 'free-field Source Level ( $SL_{\text{RMS}}$ )' exceeding  $(10\log(f) + 169,77)$  dB (reference 1  $\mu\text{Pa}$  at 1 m) where f is the frequency in Hertz of maximum Transmitting Voltage Response (TVR) below 10kHz; or
- b. Designed for continuous operation at 100 % duty cycle and having a continuously radiated 'free-field Source Level ( $SL_{\text{RMS}}$ )' at 100 % duty cycle exceeding  $(10\log(f) + 159,77)$  dB (reference 1  $\mu\text{Pa}$  at 1 m) where f is the frequency in Hertz of maximum Transmitting Voltage Response (TVR) below 10kHz; or

Technical Note:

The 'free-field Source Level ( $SL_{\text{RMS}}$ )' is defined along the maximum response axis and in the far field of the acoustic projector. It can be obtained from the Transmitting Voltage Response using the following equation:  $SL_{\text{RMS}} = (\text{TVR} + 20\log V_{\text{RMS}})$  dB (ref 1 $\mu\text{Pa}$  at 1 m), where  $SL_{\text{RMS}}$  is the source level, TVR is the Transmitting Voltage Response and  $V_{\text{RMS}}$  is the Driving Voltage of the Projector.

2. Not used

3. Side-lobe suppression exceeding 22 dB;

- d. Acoustic systems and equipment, designed to determine the position of surface vessels or underwater vehicles and having all the following, and specially designed components therefor:

1. Detection range exceeding 1 000 m; and

2. Positioning accuracy of less than 10 m rms (root mean square) when measured at a range of 1 000 m;

Note: 6A001.a.1.d. includes:

6A001 a. 1. d. 2. Note (continued)

- a. Equipment using coherent "signal processing" between two or more beacons and the hydrophone unit carried by the surface vessel or underwater vehicle;
- b. Equipment capable of automatically correcting speed-of-sound propagation errors for calculation of a point.
- e. Active individual sonars, specially designed or modified to detect, locate and automatically classify swimmers or divers, having all of the following, and specially designed transmitting and receiving acoustic arrays therefor:
  1. Detection range exceeding 530 m;
  2. Positioning accuracy of less than 15 m rms (root mean square) when measured at a range of 530 m; and
  3. Transmitted pulse signal bandwidth exceeding 3 kHz;

N.B.: For diver detection systems specially designed or modified for military use, see the Military Goods Controls.

Note: For 6A001.a.1.e., where multiple detection ranges are specified for various environments, the greatest detection range is used.'

on page 193, item 6A002.a.2.a.2.a:

for: "Space-qualified" "focal plane arrays" having more than 2 048 elements per array and having a peak response in the wavelength range exceeding 300 nm but not exceeding 900 nm.;

read: 'A microchannel plate with a hole pitch (centre-to-centre spacing) of 12 µm or less; or';

on page 256, item 9A004 is replaced as follows:

'9A004 Space launch vehicles, "spacecraft", "spacecraft buses", "spacecraft payloads", "spacecraft" on-board systems or equipment, and terrestrial equipment, as follows

N.B.: SEE ALSO 9A104.

- a. Space launch vehicles;
- b. "Spacecraft";
- c. "Spacecraft buses";

## 9A004 (continued)

d. "Spacecraft payloads" incorporating items specified in 3A001.b.1.a.4., 3A002.g., 5A001.a.1., 5A001.b.3., 5A002.a.5., 5A002.a.9., 6A002.a.1., 6A002.a.2., 6A002.b., 6A002.d., 6A003.b., 6A004.c., 6A004.e., 6A008.d., 6A008.e., 6A008.k., 6A008.l. or 9A010.c.;

e. On-board systems or equipment, specially designed for "spacecraft" and having any of the following functions:

1. 'Command and telemetry data handling';

Note: For the purpose of 9A004.e.1., 'command and telemetry data handling' includes bus data management, storage, and processing.

2. 'Payload data handling'; or

Note: For the purpose of 9A004.e.2., 'payload data handling' includes payload data management, storage, and processing.

3. 'Attitude and orbit control';

Note: For the purpose of 9A004.e.3., 'attitude and orbit control' includes sensing and actuation to determine and control the position and orientation of a "spacecraft".

N.B.: For equipment specially designed for military use, see Military Goods Controls.

f. Terrestrial equipment, specially designed for "spacecraft" as follows:

1. Telemetry and telecommand equipment;

2. Simulators.'

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