

Section 19

RADIOACTIVE VALVE

19.1. Definition. A radioactive Valve for Joint Service use is defined as one into whose manufacture a radioactive substance or composition has deliberately been introduced. In this context a radioactive substance or composition means one having radioactivity in excess of 0.002 microcuries per gram,

except (a) that any one substance listed in the Table below may be introduced at the indicated level without the valve coming into the Radioactive Class.

and (b) that more than one substance listed in the Table below may be introduced without the valve coming into the Radioactive class provided that the sum of the fractions of the permitted Quantities in Column 2 of the Tables does not exceed unity.

e.g. - a valve containing 0.8 microcuries of Krypton 85 would have 8/10 of the permitted quantity of that material. If it also contained 0.02 microcuries of Caesium 137, this would, represent 2/10 of the permitted quantity of that material, making the sum of the fraction  $8/10 + 2/10 = 1.0$ "

T A B L E

OF RADIOACTIVE SUBSTANCES SHOWING QUANTITIES PERMITTED WHEN ONE SUBSTANCE ONLY IS USED WITHOUT THAT VALVE COMING INTO THE RADIOACTIVE CLASS

<u>Column 1</u>	<u>Column 2</u>	<u>Column 3</u>
<u>Substance</u>	<u>Quantity Allowed per Valve in Microcuries</u>	<u>Radiation Dose Rate Allowed at Surface of Valve in Millirads per Hour</u>
Hydrogen 3 (H3)	1.0	0.01
Carbon 14 (C14)	1.0	0.01
Chlorine 36 (Cl36)	1.0	0.01
Cobalt 60 (Co60)	0.1	0.01
Nickel 63 (Ni63)	0.1	0.01
Krypton 85 (Kr. 85)	1.0	0.01
Caesium 137 (Cs 137)	0.1	0.01
Thorium Natural	0.1	0.01
Thallium 204 (Tl 204)	0.1	0.01
Lead 210	0.1	0.01
Radium 226	0.1	0.01
Uranium Natural (U 238)	0.1	0.01

19.2. Radioactivity Declaration by Manufacturer

When radioactive material is incorporated into any valve whatever, the radioactive substance(s) and quantity(ies) concerned must be declared to the Qualification Approval Authority at the time of submitting samples for Approval.

19.2.1. Ministry of Aviation T.L.5b (T.V.C. Office) shall be informed for those valves having C.V. numbers but without C.V. Specifications.

19.3. Radioactivity Declaration by Approval Authority

The Qualification Approval Authority (or M.O.A./T.L.5b as appropriate) shall supply to other Specification and Qualification Approval Authorities and to the Inspectorates details of the Radioactive content of valves whether or not these valves fall within the definition of a Radioactive Valve. This information shall also be inserted on the Qualification Approval Certificate.

19.3.1. The Specification Authority shall endorse the relevant C.V. Specification, "This Valve may be Radioactive".

19.4. Further information on Services Radioactive Valves and their problems is given in T.V.C. Information Sheet No. 11.

19.5. Sources of further information on general radioactivity matters and Codes of Practice are listed in Appendix XVI.