



**Expect Service**

**Radiation Products Design Inc**

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## INSTRUCTIONS

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### RPD INFORMATION

**Address** 5218 Barthel Industrial Drive  
Albertville, MN 55301

**Website** [www.rpdinc.com](http://www.rpdinc.com)

**Email** [sales@rpdinc.com](mailto:sales@rpdinc.com)

**Phone** 763-497-2071 or 800-497-2071

**Fax** 763-497-2295

### RPD PRODUCT INFORMATION

**RPD is an authorized distributor**

<b>Item Number</b>	<b>Description</b>
486-405	Super-Flex Bolus - 0.5cm x 35cm sq
486-410	Super-Flex Bolus - 1.0cm x 35cm sq
486-415	Super-Flex Bolus - 1.5cm x 35cm sq
486-420	Super-Flex Bolus - 2.0cm x 35cm sq
486-425	Super-Flex Bolus - 2.5cm x 35cm sq
486-430	Super-Flex Bolus - 3.0cm x 35cm sq
486-440	Super-Flex Bolus - 4.0cm x 35cm sq
486-505	Super-Flex Bolus with Film 0.5cm x 30cm sq
486-510	Super-Flex Bolus with Film 1.0cm x 30cm sq
486-515	Super-Flex Bolus with Film 1.5cm x 30 cm sq
486-520	Super-Flex Bolus with Film 2.0cm x 30 cm sq
486-525	Super-Flex Bolus with Film 2.5cm x 30cm sq
486-530	Super-Flex Bolus with Film 3.0cm x 30cm Sq.
486-50535	Super-Flex Bolus with Film 0.5cm x 30cm x 50cm
486-51035	Super-Flex Bolus with Film 1.0cm x 30cm x 50cm

## INTRODUCTION

Superflex material is CALIBRATED with photon and electrons in the energy range greater than 1 MeV. This assures accurate measurement and administration of the prescribed dose of radiation. Close quality control of the thickness promotes quality results time after time. The materials do not flow, creep, or sag out of shape and may be cut with scissors to fit the patient and layered as required to build up the thickness.

## FEATURES

- Latex Free
- Calibrated
- Equivalent to soft tissue in radiation interaction
- Transparency allows visual beam location
- May be cut with scissors and stacked to increase thickness
- Unaffected by one million rads of radiation
- Non-allergenic and non-toxic
- Conforms to body contours with minimal change to thickness
- Easily cleaned with soap and water or alcohol
- 1.03 density
- 1.02 electron density
- Super-Flex Bolus with Film (BOLX-I) is extremely durable. Use time after time.
- Super-Flex Bolus (BOLX-II) is skinless and self-adhering for stacking, is softer and conforms better to body surface irregularities

## APPLICATION

### ULTRASOUND

Super-Flex is used because of its excellent ability to conform to body surfaces. As a transducer array stand off it makes a smoother surface and acts as a separator in near-surface imaging, making the imaged objects appear clearer.

### RADIATION THERAPY

In the energy range greater than 1 MeV using photons or electrons, Super-Flex calibrations curves are available. Calibration allows greater accuracy in dosimetry and in therapy. In use, a bolus is placed over or around the irradiated area to provide build-up, energy reduction/attenuation, or extra scattering. Super-Flex conforms well to most human surfaces without significant change in thickness. The soft tissue equivalence density, approximately 1.03, results from its chemical composition which is mostly carbon, oxygen, and hydrogen.

### MISCELLANEOUS

Super-Flex is nearly the ideal material for use as the matrix for test-object phantoms. The material can also be used as missing tissue or as internal heterogeneity compensation in x-ray imaging techniques that require the compensator to be on or near the patient.

## RADIATION MEASUREMENTS

The Figures below are reference curves with bolus material measurements superposed. In A and C the reference curves show concomitant measurements on polystyrene representing water-equivalent thickness. In B the reference curves are based on clinical data in use. In addition, in B, the water-equivalent polystyrene thickness data points are superposed along with the bolus material measurements. The degree of fit of the bolus material measurements to the reference curves indicate tissue-equivalence.

Figure A

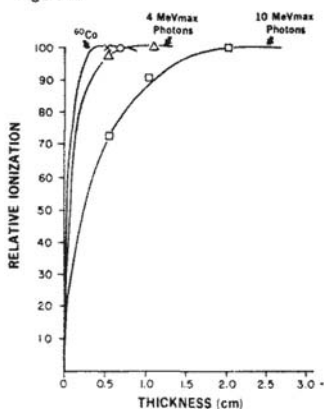
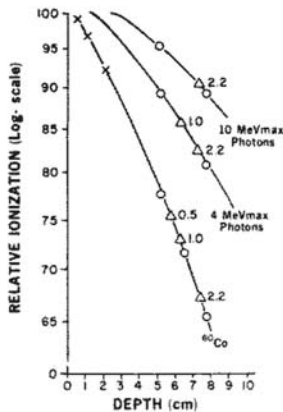


Figure A

**THICKNESS IONIZATION RELATIONSHIPS for PHOTONS** with fixed source-to-chamber distance. Reference curves are water-equivalent thickness measured in polystyrene.

Superposed Data

- + = <sup>60</sup>Co bolus only
- o = <sup>60</sup>Co bolus on 0.16 cm polystyrene
- Δ = Clinac 4 bolus only
- 9 = Clinac 18 (10X) bolus only

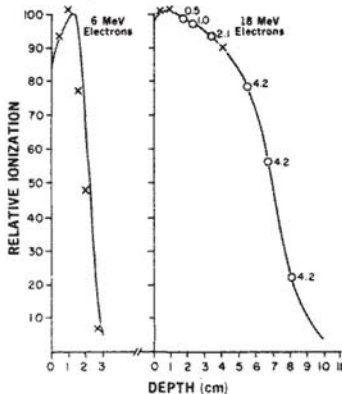
**Figure B****Figure B**

DEPTH IONIZATION  
RELATIONSHIPS to evaluate  
PHOTON ATTENUATION BY  
SURFACE BOLUS and  
POSSIBLE USE AS PHANTOM  
Reference curves are based on  
clinical data in use.

**Superposed Data**

- = Water-equivalent polystyrene thickness
- + = Bolus only actual thickness
- Δ = Bolus on polystyrene; numbers indicate thickness (cm) of bolus material

Chamber position fixed for 4adn 10MeVmax photons (TMR; 80 and 100 cm SAD) and variables for <sup>60</sup>Co measurements (% DD; 80 cm SSD)

**Figure C****Figure C**

DEPTH IONIZATION  
RELATIONSHIPS for 6 and 18  
MeV ELECTRONS Reference  
curves are water-equivalent  
thickness measured in  
polystyrene.

**Superposed Data**

- + = Bolus material only
- = Bolus material on polystyrene; numbers indicate thickness (cm) of bolus material

Reference: Robert F. Moyer, PhD, W.R. McElroy, PhD, et al, RADIOLOGY 146 No. 2, 531-2 (1983)

When evaluated for CT procedures the Hounsfield numbers using Technicare 2020 Unit were  $0 \pm 10$  for the BOLX-I and  $-10 \pm 10$  for the BOLX-II

## CLEANING

For cleaning and disinfecting always use conventional hospital approved topical equipment cleaners and disinfectants that do not contain alcohol. Bolus is impervious to liquids making wet, cold sterilization a recommended means of sterilization. Bolus is washable at temperatures of approximately 103°F/ 40°C. Make sure bolus does not enter washing machines or dryers. Avoid alcohol and other strong, undiluted disinfectants. These may cause staining or hardening of the bolus's outer skin. Thoroughly rinse products with clear water to remove any residue from cleaning solutions. Gas sterilization and autoclaving are NOT recommended.

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