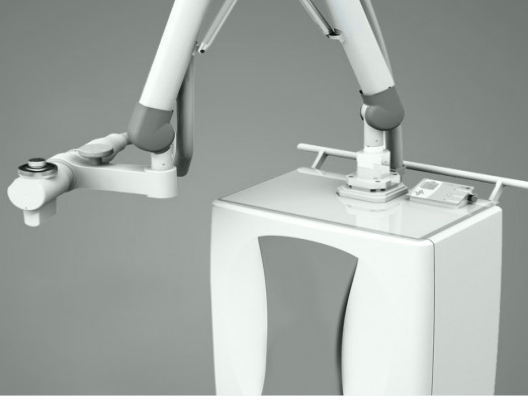




High Quality, Accurate, Patient Specific Superficial Shield

AttenuFlex

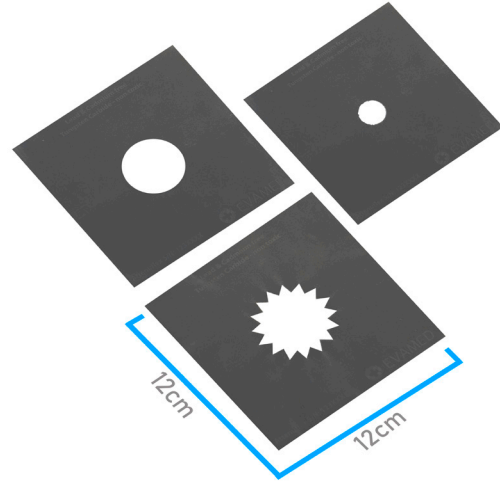
- NonToxic
- Tungsten Carbide material
- Patient specific capabilities



AttenuFlex™ is our proprietary, non-toxic and recyclable replacement for lead sheet shielding in Superficial and Orthovoltage radiation therapies, manufactured to 10 kg or 15 kg/m² lead equivalence.

Utilising advanced 3D computer aided design (CAD) and computer numerical control (CNC) techniques, 3D One has developed streamlined manufacturing processes that utilise an accurate profile of a patient's required radiation therapy treatment area to create a precise, customised Superficial or Orthovoltage shield. AttenuFlex allows Healthcare Professionals to deliver highly conformed X-ray treatment profiles that minimises exposure to healthy tissues.

The 3D One AttenuFlex is malleable and available with, or without, a precise clinical centre defined aperture, that may be either regular-shaped (square, circle, ellipse) or patient-specific. The aperture is created utilising high accuracy waterjet cutting. This process enables 3D-One to provide on-demand custom-designed, malleable Tungsten Carbide shields for individualised patient treatment, efficiently and with rapid delivery.



Tungsten Carbide Powder

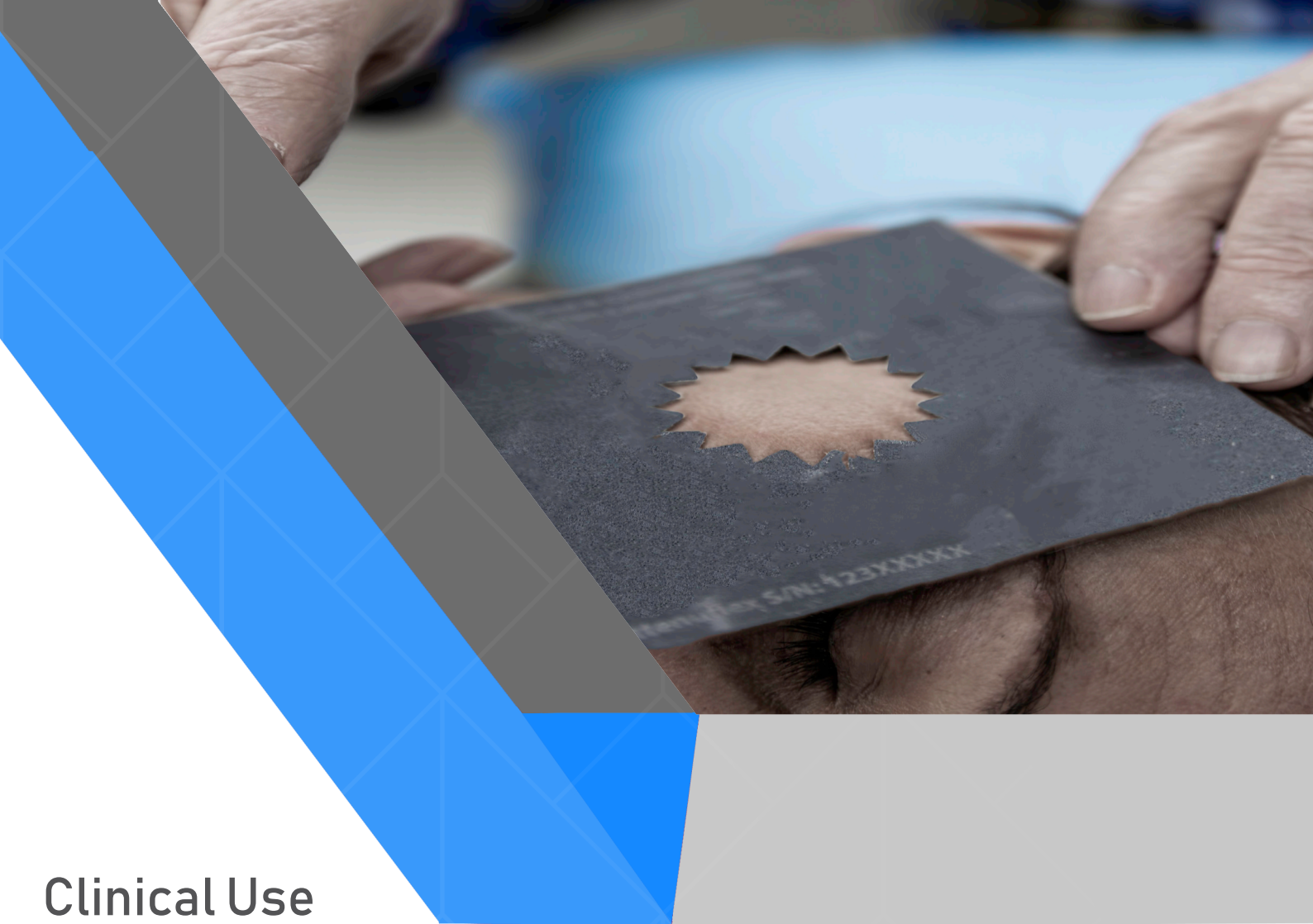
Introduction

Lead shielding is commonly used throughout the world to define the treatment profile of kilovoltage X-rays. The use of lead however presents a serious health concern for both patients and clinical centre workers. Tungsten Carbide provides an alternative to lead that offers equivalent performance without the health and safety concerns.

AttenuFlex – Malleable Tungsten Carbide shielding is used in Superficial and/or Orthovoltage Radiation Therapy where a patient requires full prescription dose to the skin surface. The AttenuFlex acts as a lead equivalent material, placed on the patient's skin to minimise scattering of x-ray beams to non-targeted areas.

AttenuFlex contacts well with a patient's skin surface, resulting in minimal air gaps and reduced radiation scatter. It is of uniform density and thickness, reproducible to position, and does not cause discomfort to the patient in either the creation or daily positioning of the shield. The Attenuflex may be sanitised as required.





Clinical Use

The testing thus far has shown that AttenuFlex has suitable physical properties as to be an alternative to conventional toxic lead options, providing reproducible densities coupled with ease of use. This confirms published studies which tend to focus on the technical aspects of the generation of the superficial and dosimetric properties when determined in phantom studies⁴.

Lead Free

The use of lead containing materials at room temperature, let alone melting point, is a serious health concern for the hospital workers and patients when it is placed onto radiotherapy machines for patient treatment. Special rooms and handling procedures have been developed to manage the risk but this comes at a high operating cost to the hospitals. Unfortunately, this does not eliminate the risk as lead is still toxic even in final form ready for use. 3D One has utilised a manufacturing process which is rigorously tested and is guaranteed 100% lead and cadmium free.

R&D

3D One has invested over \$1 Million in R&D specifically to design an environmentally friendly material that can be used as a replacement for LMPA traditionally used within the Varian and Elekta LINACS.

Lead Time

3D One's advanced technology allows for same day dispatch on orders placed before 9am.

Attenuflex Unique Features



A Superior alternative to traditional lead radiation shield devices



Laser etched labelling



Non-hazardous



Superficial & Orthovoltage use



Improved accuracy production of all Attenuflex water jet cutouts



Significant reduction in preparation time

1.) Hill R, Healy B, Holloway L, Kuncic Z, Thwaites D, Baldock C; 2014; Advances in Kilovoltage x-ray beam dosimetry, Phys. Med. Biol.; 59, R183-R231 2.) Butson M, Cheng T, Rattanavong S, Hellyer J, Gray A, Nelson V, Short R, Rajapakse S, Lee J, Fogarty G, Izard M, Hill R; 2015; Reducing shield thickness and backscattered radiation using a multilayered shield for 6-10 MeV electron beams; Australas Phys ENG Sci Med; 38, 619-626 3.) Tajiri M, Sunoaka M, Fukumura A, Eno M; 2004; A new radiation shielding block material for radiation therapy; Medical Physics; 31(11), 302-3023 4.) Yue K, Luo W, Dong X, Wang C, Wu G, Jiang M, Zha Y; 2009; A new lead-free radiation shielding material for radiotherapy; Radiation Protection Dosimetry; 133(4), 256-260

Testimonials

"The team at 3D One actively engage in customising their products to our departmental needs. They show eagerness in investigating improvements and thoughtful design modifications are proffered frequently. Exciting things have been made possible for us!"
- *Waikato Hospital, New Zealand*

Technical Specifications	
Density (g/cc)	> 9 (Equivalent to LMPA)
Size (cm)	10x10, 12x12, 15x15
Working Temp (°C)	< 50 °C
Materials	Tungsten Carbide



TGA Registration no: 299710



Orders Portal Login



Username

Password

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Australia

Our unique Orders Portal <https://3d1orders.com.au/> allows our registered clients to upload patients redacted files in various formats such as .DAT, .CSV, .STL or .DCM