REGISTRY OF RADIOACTIVE SEALED SOURCES AND DEVICES
SAFETY EVALUATION OF SEALED SOURCE

NO.: TX508S105U DATE: February 1978

SEALED SOURCE TYPE: Interstitial Treatment of Cancer

MODEL: Gold Grains

MANUFACTURER/DISTRIBUTOR: Nuclear Sources and Services, Inc.
P. O. Box 4023
Houston, TX 77017

MANUFACTURER/DISTRIBUTOR:

ISOTOPE: Gold-198 MAXIMUM ACTIVITY: 34 millicuries

LEAK TEST FREQUENCY:

PRINCIPAL USE: General Medical Use

CUSTOM SOURCE: ___ YES _X_ NO

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DESCRIPTION:

These gold grains were developed by the Royal Marsden Hospital in London, England and are designed for the interstitial treatment of cancer. They are used like radon seeds but provide a more predictable activity.

The grains are sheathed in platinum to filter the primary beta radiation and are 2.5 mm long and 0.8 mm in diameter. They each weigh about 25 mgm of which 6.5 mgm is gold and 18.5 mgm is platinum. They are fabricated at Englehard Metals in Canada.

The grains may be implanted in the same fashion as radon seeds, or they may be implanted using a Royal Marsden Gun. If the gun is used, the grains are loaded in an aluminum cartridge which holds 14 grains. The ends of the cartridge are thin aluminum discs which are pierced by the seeds when they are put in the gun and the gun prepared for use. The gun provides an easier method for implanting in most cases and allows one grain at a time to be implanted.

The total absorbed dose delivered after decay for 4.7 mCi of gold 198 grains is equivalent to that of 1 mCi of radon. When radium tables are used, 1000 mg hours of radium delivered dosage is equivalent to 34 mCi of gold 198.

The grains are packaged end to end in a nylon tubing for irradiation. Each tube contains 30 to 40 grains and the ends of the tubing are sealed by flame. The grains are irradiated in a reactor and sent to NSSI in the nylon tubes. At NSSI the tubes are opened and the grains assayed. The activity is usually about 20 mCi per grain. The grains are then loaded in aluminum cartridges or are loaded in vials and placed in lead shields for shipping. If the recipient does not use the grains within one week they may be returned to NSSI for re-irradiation. NOTE: The seeds are not sterilized by NSSI but must be sterilized by the recipient. Instructions are provided for sterilizing the cartridges and loose grains contained in a glass vial.

LABELING:

The shipping container is labeled with the standard radiation symbol, the "Caution - Radioactive Material" warning, the isotope, the activity, decay chart, the number of grains, activity per grain, time of assay, and date. Also, the label specifies the grains must be sterilized before use and are to be used only

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LABELING (CONT'D):

by a physician. A warning is also included to not use on pregnant women or patients under 18 years of age unless exceptional circumstances exist. The label also specifies the grains are authorized for distribution to Group VI licensees pursuant to Section 35.14 and 35.100 of 10 CFR 35.

EXTERNAL RADIATION LEVELS:

The cartridges or vials are packaged in 0.75 inch lead shields and hermetically sealed in metal cans which are in turn held in the center of a 5 gallon metal pail, DOT7A container. The average radiation level on the surface of the outer container is 40 mr/hour when shipped.

ISSUING AGENCY:

Texas Department of Health