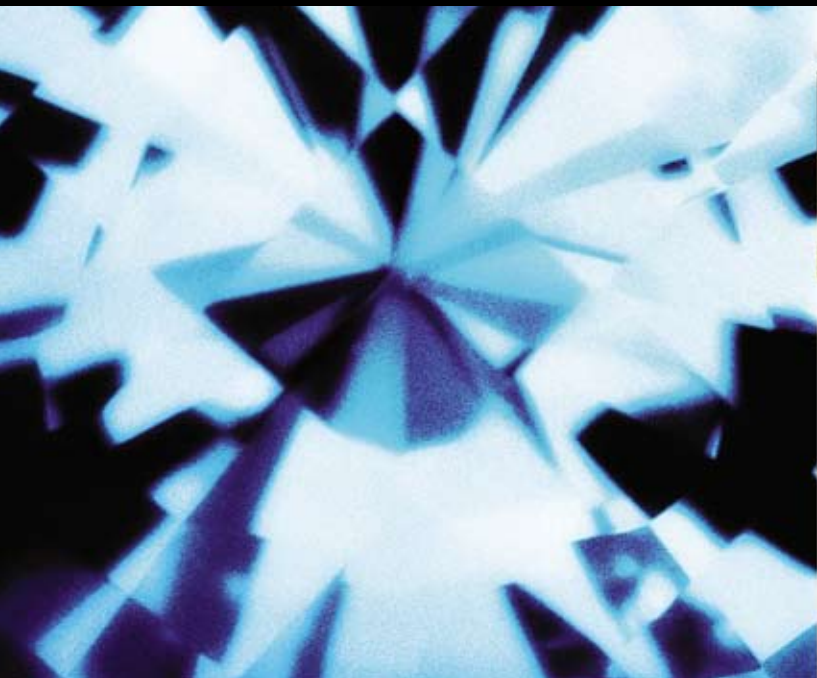





THE ESSENTIAL GUIDE TO THE U.S. TRADE IN
IRRADIATED GEMSTONES



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INTRODUCTION

The JVC and the AGTA are presenting this guide to facilitate the trade in irradiated gemstones in the U.S.

The gemstones covered under Nuclear Regulatory Commission (NRC) regulations are those gemstones subject to either nuclear reactor or accelerator irradiation that cause gemstones to become radioactive. These include London blue topaz, sky blue topaz, irradiated diamonds, irradiated beryl, and a small percent of irradiated red tourmaline (also called rubelite) and irradiated kunzite.

Gemstones that are treated with gamma rays (Cobalt-60) such as treated pearls, yellow sapphire and treated quartz, and the majority of irradiated red tourmaline and irradiated kunzite in the marketplace are not covered under these rules because they do not become radioactive.

The main government agency in the United States governing the distribution of radioactive material, including irradiated gemstones is the Nuclear Regulatory Commission. The NRC regulations were not specifically designed for gemstones, but cover gemstones because certain gemstones are irradiated either in a nuclear reactor or certain types of electronic accelerators. The goals of the regulations and mission of the NRC are to protect public health and safety.

THE NRC CAN ISSUE LICENSES ONLY TO ENTITIES WITH A PHYSICAL PRESENCE IN THE U.S.

The NRC sets levels of concentrations of radioactivity below which a U.S. entity can trade in gemstones,

as long as they do so in compliance with the licensing provisions. If irradiated gemstones have concentration levels of radioactivity below the permissible levels, and they are initially distributed by an entity with a NRC exempt distribution license, they may be subsequently transferred without further regulatory controls. For the initial distribution of irradiated gemstones (or jewelry containing these gemstones) in the U.S., they must be possessed and distributed by a licensed entity. Simply put, after the initial distribution by entities with the appropriate licenses, they can be freely traded.

Certain states may also require state licenses to allow the possession of irradiated gemstones prior to NRC authorized distribution. Any entity with a physical presence in the United States that initially possesses and distributes irradiated gemstones must have a specific NRC license to do so.

This publication is designed to provide general guidance and information to all sectors of the jewelry trade regarding who must obtain a license and how irradiated gemstones may be legally distributed in the U.S. It is not meant as a technical guide for those seeking to become licensed. The NRC publishes such a guide that is available on the web site—<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/v8/>.

This information and guidance is not meant to be any form of legal advice.

NRC REGULATIONS AND LICENSING

The NRC issues several types of licenses to entities with a physical presence in the United States. These licenses allow the importation, possession and distribution of irradiated gemstones.

SOME STATE AGENCIES ARE
AUTHORIZED BY THE NRC TO ISSUE
POSSESSION LICENSES. ONLY THE NRC
CAN ISSUE DISTRIBUTION LICENSES.

The NRC has entered into agreements with some state agencies to delegate possession licensing functions. In those states where there are no such agreements, the possession licenses must be obtained directly from the NRC.

The list of Agreement States are: AL, AZ, AR, CA, CO, FL, GA, KS, KY, ME, MA, MN, MI, NE, NV, NH, NM, NY, NC, ND, OH, OK, OR, RI, SC, TN,

TX, UT, WA, WI. In these states, a local state agency issues the appropriate licenses to permit the possession of irradiated gemstones. Regardless who (Agreement State or NRC) issues the possession license, a separate distribution license can be issued only by the NRC. For more information about agreement states, go to <http://nrc-stp.ornl.gov/asdirectory.html>.

There are fees associated with obtaining the licenses and an annual fee to maintain the license. For more information about the fees, visit the NRC web site at www.nrc.gov.

ENTITIES THAT SEEK TO IMPORT IRRADIATED
GEMSTONES MUST ENSURE THAT THE
GEMSTONES WERE INITIALLY POSSESSED BY
AN ENTITY THAT HOLDS A POSSESSION LICENSE
FROM AN AGREEMENT STATE OR AN
NRC LICENSED ENTITY



RETAILERS AND WHOLESALE DEALERS

IF YOU ARE A RETAILER OR WHOLESALE DEALER IN IRRADIATED GEMSTONES OR IRRADIATED GEMSTONE JEWELRY, AND DO NOT INTEND TO BE THE INITIAL IMPORTER AND DISTRIBUTOR, YOU ARE NOT REQUIRED TO OBTAIN A LICENSE. YOU MAY GO DIRECTLY TO PAGE 6, *RETAIL SALES IN THE U.S. OF IRRADIATED GEMSTONES OR JEWELRY CONTAINING IRRADIATED GEMSTONES*, IN ORDER TO LEARN ABOUT YOUR RESPONSIBILITIES IN SELLING THESE MATERIALS.

INITIAL POSSESSION OF IRRADIATED GEMSTONES

To possess irradiated gemstones, you must acquire a possession license from the NRC or an Agreement State. With a possession license, you may transfer irradiated gemstones only to other holders of possession licenses. With this license alone, you would be unable to distribute to non-license holders in the U.S.

A NRC or Agreement State possession license can be granted only to a U.S. entity. When undergoing treatment or processing, the gemstones, themselves, need not necessarily be in the U.S. They can be treated, cut and polished outside the U.S. on behalf of a U.S. possession license holder, and then transferred, for example, to a U.S.-based entity with a NRC distribution license. Or, the treated and processed gemstones could be transferred to an entity outside the U.S. who itself holds a NRC distribution license, and then traded to a non-licensed entity in the U.S. The entity in

the U.S. that takes possession of irradiated gemstones that have been treated, cut and polished outside the U.S. must be able to verify that the gemstones have been handled in a manner consistent with NRC requirements, and that the levels of radioactivity are below U.S. requirements.

In cases where the holder of the possession license maintains the gemstones outside the United States, the U.S.-based initial distributor who first receives the gemstones must have access to survey meters (i.e. Geiger counters) to ensure the safety of the persons who deal with the gemstones.

IN ORDER TO ACQUIRE A DISTRIBUTION LICENSE, YOU MUST FIRST ACQUIRE A POSSESSION LICENSE.



DISTRIBUTING IRRADIATED GEMSTONES OR JEWELRY CONTAINING IRRADIATED GEMSTONES

If you are a retailer or wholesale dealer in irradiated gemstones or irradiated gemstone jewelry, and do not intend to be the initial importer and distributor, you are not required to obtain a license. You may go directly to page 6, *Retail Sales in the U.S. of Irradiated Gemstones or Jewelry Containing Irradiated Gemstones*, in order to learn about your responsibilities in selling these materials.

The initial distributor of the irradiated gemstones to the first non-licensed entity in the supply chain in the United States must acquire a license from the NRC, called an “exempt distribution” license. Generally, this license requires that irradiated gemstones be screened for levels of radiation to ensure that they are at or below permitted levels. The equipment used for such screening is called “low-level radio nuclide analysis equipment” with either a sodium iodide crystal or a germanium lithium crystal detector. It looks at the energy coming off the material, identifies the radioactive elements, and measures the radiation levels, if any. This initial distributor is also required to establish procedures to maintain records of the irradiated gemstones they distribute. This is done to create a paper trail needed to establish the chain of distribution down to the retail seller.

The initial distributor must have a U.S. address but could have the screening equipment outside the U.S. The initial distributor would still need a NRC distribution license and procedures to provide to the NRC assurance that the screening is technically sound, in compliance with U.S. standards, and the testing equipment is accurate. Of course, a paper trail is required to establish that the irradiated gemstones, once distributed, have been initially distributed in compliance with NRC requirements.

Once the gemstones are ready to be distributed, it is recommended (but not required by law) that a warranty stating that the gemstones were imported and distributed in compliance with U.S. law should be provided to the buyer of the gemstones. The suggested supply-chain assurance language is displayed below.

If you intend to be the initial importer and distributor of irradiated gemstones or irradiated gemstone jewelry into the U.S., please thoroughly review page 3, *NRC Regulations and Licensing* and page 4, *Initial Possession of Irradiated Gemstones*.

SUGGESTED SUPPLY-CHAIN ASSURANCE LANGUAGE

“THE SUPPLIER HEREBY WARRANTS THAT THE IRRADIATED GEMSTONES (OR JEWELRY CONTAINING IRRADIATED GEMSTONES) HEREIN INVOICED WERE INITIALLY IMPORTED AND DISTRIBUTED IN THE U.S. IN COMPLIANCE WITH U.S. LICENSING REGULATIONS.”

RETAIL SALES IN THE U.S. OF IRRADIATED GEMSTONES OR JEWELRY CONTAINING IRRADIATED GEMSTONES

Retailers can choose to acquire NRC licenses to possess or distribute irradiated gemstones but they do not need to have such a license, as long as the irradiated gemstones (or the jewelry containing irradiated gemstones) they purchase were initially distributed by an entity licensed to distribute irradiated gemstones. Therefore, it is recommended that retailers who are not licensed get an assurance from their suppliers that the gemstones they buy are in the U.S. in compliance with NRC regulations. See page 5, *Suggested Supply-Chain Assurance Language*.

MOST RETAIL JEWELERS IN THE UNITED STATES WOULD NOT BE EXPECTED TO OBTAIN POSSESSION OR DISTRIBUTION LICENSES. THEY SHOULD, HOWEVER, ACQUIRE THE PROPER ASSURANCE FROM THEIR SUPPLIERS THAT THE GEMSTONES HAVE BEEN TRADED IN A MANNER CONSISTENT WITH NRC REGULATIONS.

An entity that holds licenses to possess and distribute irradiated gemstones can distribute to a non-licensed entity – which could be a manufacturer or a retailer. A paper trail should be maintained by the license holder to allow the non-licensee who receives the gemstones to establish, if necessary, that the gemstones were traded in a manner consistent with NRC licensing regulations. It is recommended that subsequent distributors of the gemstones provide an assurance to their buyers that the gemstones have been traded in a manner consistent with NRC licensing provisions. See page 5, *Suggested Supply-Chain Assurance Language*.



MANUFACTURING JEWELRY IN THE U.S. WITH IRRADIATED GEMSTONES

Manufacturers in the U.S. who purchase irradiated gemstones from distributors with the appropriate NRC licenses need not themselves be licensed. It is recommended that manufacturers who purchase irradiated gemstones in the U.S. from licensed vendors or

others acquire an assurance from their suppliers that the gemstones are traded in compliance with NRC regulations. See page 5, *Suggested Supply-Chain Assurance Language*.

MANUFACTURING JEWELRY WITH IRRADIATED GEMSTONES OUTSIDE THE U.S.

Licensed entities that hold licenses to possess and distribute irradiated gemstones can distribute to non-licensed entities (a manufacturer or a retailer in the U.S. or abroad). A paper trail should be maintained by the license holder to allow the non-licensee who receives the gemstones to establish, if necessary, that the gemstones were traded in a manner consistent with NRC licensing regulations. It is recommended that subsequent distributors of the gemstones provide an assurance to their buyers that the gemstones have been traded in a manner consistent with NRC licensing provisions. See page 5, *Suggested Supply-Chain Assurance Language*.

Unlicensed manufacturers who purchase irradiated gemstones in the U.S., then re-export them for manufacture abroad, must purchase irradiated gemstones that were initially distributed by an entity with a distribution license. Once the gemstones are properly distributed within the U.S., they can be re-exported for manufacture (or even re-sale) and then re-enter the U.S. without using licensed entities as long as the paper trail of the initial licensed distribution is maintained.

It is recommended that the supplier of such gemstones (or jewelry containing such gemstones) should provide an assurance. See page 5, *Suggested Supply-Chain Assurance Language*.

MUST LICENSED IMPORTERS, POSSESSORS AND DISTRIBUTORS OWN THE GOODS THAT THEY IMPORT, POSSESS OR DISTRIBUTE?

If you are the owner of irradiated gemstones, they can be initially imported, possessed and distributed on your behalf by third party holders of the appropriate licenses. This would require you to engage the services of the licensed entities, and ensure that they are in complete compliance with NRC requirements and that they can provide, if necessary, a paper trail

to establish that the irradiated gemstones have been traded in compliance with NRC regulations. They would also provide a warranty that the gemstones that they possessed and distributed were traded in compliance with NRC licensing regulations. See page 5, *Suggested Supply-Chain Assurance Language*.



CAN THE LICENSE HOLDER BE LOCATED OUTSIDE THE U.S.?

The NRC regulates only those businesses located in the U.S. If you import, possess or distribute irradiated gemstones and wish to be licensed, then you must have a physical presence in the U.S. to allow the NRC to enforce its regulatory requirements. If your testing or screening equipment is located outside the U.S., you must create monitoring and record keeping mea-

sures in order to prove to the NRC, if required, that you have the necessary screening equipment, that the equipment is operating accurately, and that you are maintaining records to establish the necessary paper trail once the goods are imported and distributed in the United States.



DO THE NRC REGULATIONS APPLY TO FINISHED PRODUCT CONTAINING IRRADIATED GEMSTONES?

Once the irradiated gemstones have been initially distributed by an entity licensed for that purpose by the NRC, they require no further regulatory control.

If the gemstones are set into jewelry in the U.S., the initial possessor and distributor of the irradiated gemstones should have had the appropriate licenses. If the finished jewelry contains irradiated gemstones that were previously imported and possessed in the U.S. by a licensee, and then re-exported for the purpose of being manufactured into finished jewelry, they no longer are subject to regulatory control. The entity who imported the finished goods with irradiated gemstones need not be licensed, but should receive an assurance that the gemstones contained in the jewelry were already possessed and distributed in the U.S. in

compliance with NRC licensing regulations. Suggested language is shown in box below.

The entity who imported the finished goods with irradiated gemstones should also be prepared to establish at the point of entry that this is not the initial possession or distribution in the U.S.

SUGGESTED SUPPLY-CHAIN ASSURANCE LANGUAGE:

“THE SUPPLIER HEREBY WARRANTS THAT THE IRRADIATED GEMSTONES (OR JEWELRY CONTAINING IRRADIATED GEMSTONES) HEREIN INVOICED WERE INITIALLY IMPORTED AND DISTRIBUTED IN THE U.S. IN COMPLIANCE WITH U.S. NRC LICENSING REGULATIONS.”

FREQUENTLY ASKED QUESTIONS

1. Why and how are gemstones irradiated?

Gemstones are irradiated in order to enhance and deepen their color. They can be irradiated in a nuclear reactor (neutron bombardment), an accelerator (electron bombardment), or by exposure to gamma rays in a cobalt irradiator. The most commonly treated stone is topaz, which becomes blue as a result of the exposure to radiation.

2. Why is an “exempt distribution” license required for the initial distribution of irradiated gemstones?

The license provides a safeguard against the possibility that stones might reach the market too soon after irradiation, with radioactivity above NRC limits. The distribution licensee is required to perform sophisticated surveys to verify that the stones meet NRC requirements for exempt distribution.

3. Is it dangerous to wear blue topaz?

No. The NRC has no indication that wearing irradiated gemstones can be harmful. There have been no reported cases of anyone being harmed by wearing irradiated gemstones. From a safety standpoint, there is no reason to stop wearing blue topaz or any other irradiated gems. There is no reason to believe blue topaz or any other irradiated gemstone poses any health risk. The NRC has not advised, requested or ordered any retailers or distributors to stop selling irradiated gemstones.

4. Am I selling “contraband”?

No. Current inventories in retail outlets and distribution channels have not been distributed by an NRC licensee, but these should not be considered contraband. The NRC is working to resolve regulatory issues regarding the current inventory of irradiated gemstones.

5. Should I stop selling these popular gemstones?

That is a business decision only you can make. The NRC has sought information from the industry about how irradiated gemstones reach the U.S. market, but the agency has not requested any action, including a halt in sales.

6. I read that there was a ban on selling irradiated gemstones. Is this true?

No. When the NRC approached industry groups in 2007 seeking information about the distribution of irradiated gemstones, several retailers pulled their stones from the market in response. This was a voluntary action on their part. The NRC did not request or impose any such action.

7. Do I need a NRC License to sell blue topaz or other irradiated gems?

No. Individual jewelers do not need to be licensed provided the gemstones they sell were initially distributed by a NRC licensee.



AGTA

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