

CR Plates and Cassettes

User Manual

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Legal Notice



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Introduction to this Manual

Topics:

- *Scope of this Manual*
- *About the safety notices in this document*
- *Disclaimer*

Scope of this Manual

This manual contains information for the safe and effective operation of AGFA CR plates and cassettes: CR MD4.x, CR MM3.x, CR MM2.0, CR RT1.x, ADC MD10 plate and cassette.

About the safety notices in this document

The following samples show how warnings, cautions, instructions and notes appear in this document. The text explains their intended use.



DANGER:

A danger safety notice indicates a hazardous situation of direct, immediate danger for a potential serious injury to a user, engineer, patient or any other person.



WARNING:

A warning safety notice indicates a hazardous situation which can lead to a potential serious injury to a user, engineer, patient or any other person.



CAUTION:

A caution safety notice indicates a hazardous situation which can lead to a potential minor injury to a user, engineer, patient or any other person.



An instruction is a direction which, if it is not followed, can cause damage to the equipment described in this manual or any other equipment or goods and can cause environmental pollution.



A prohibition is a direction which, if it is not followed, can cause damage to the equipment described in this manual or any other equipment or goods and can cause environmental pollution.



Note: Notes provide advice and highlight unusual points. A note is not intended as an instruction.

Disclaimer

Agfa assumes no liability for use of this document if any unauthorized changes to the content or format have been made.

Every care has been taken to ensure the accuracy of the information in this document. However, Agfa assumes no responsibility or liability for errors, inaccuracies or omissions that may appear in this document. To improve reliability, function or design Agfa reserves the right to change the product without further notice. This manual is provided without warranty of any kind, implied or expressed, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.



Note: In the United States, Federal law restricts this device to sale by or on the order of a physician.

Configuration

Topics:

- *General Information*
- *Full Leg Full Spine (FLFS) Application*
- *CR Mammography Application*
- *CR Extremities Application*
- *CR Radiotherapy Application*

General Information

Topics:

- *Cassettes Containing CR Plates*
- *Replacement Plates*

Cassettes Containing CR Plates

If you have received cassettes already containing CR plates, the cassettes have been factory initialized with the initialization code of the CR plate.



CAUTION:

If the initialization code of your CR plate is NOT code 15, please check if you meet the following system requirements:

- NX environments
- QS environments: QS 2.1.59 and higher
- VIPS environments: CPF generated with CCM1107

If your system meets these requirements, no further action is required. The cassettes are ready for use.

If your system does NOT meet these requirements, please implement one of the two following options:

- Upgrade your system to the required level.
- Re-initialize the cassette, reset the initialization code to code 15 (see below) and change the cassette label to code 15.

Impact on dose monitoring:

- Initialization codes higher than code 20 have a positive impact on dose monitoring. With these codes, SAL and lgm will be more precise.
- For every new initialization code, the system will create a new “signature”, as the dose monitoring tool calculates separate statistics per exam type, Digitizer and plate initialization code. Therefore the dose monitoring tool will not work after introducing a new initialization code until the statistics are complete again, or a value is fixed manually.

Replacement Plates

If you have received CR plates separately as replacement, the cassettes must be initialized first.

The CR plate type is specified by the plate type name and initialization code which are printed on the back (e.g. MD40 code 15, CR MD4.0 code 34, CR MM3.0 code 22).

If the CR plates are not yet inserted into the cassettes, but packed in a separate cardboard packaging, plates must be inserted in the cassettes with their backside up.



The cardboard packaging also contains new labels to be put on the cassette. Please apply the labels onto the cassette as indicated below.



CAUTION:

If the initialization code of your CR plate is NOT code 15, please check if you meet the following system requirements:

- NX environments
- QS environments: QS 2.1.59 and higher
- VIPS environments: CPF generated with CCM1107

If your system meets these requirements, you can initialize the cassette using the initialization code indicated on the plate. For more information on the initialization of cassettes, see “Installation”.

If your system does NOT meet these requirements, please implement one of the two following options:

- Upgrade your system to the required level and initialize the cassette using the initialization code indicated on the plate.

- Insert the CR plate in your existing cassette initialized for code 15 and change the cassette label to code 15. No further action is required: the plate will be treated as code 15.

Related Links

[*Installation*](#) on page 18

Full Leg Full Spine (FLFS) Application

CR FLFS cassettes are specifically designed for the Full Leg Full Spine application, but can also be used for General Radiography applications.

CR FLFS cassettes are to be used as described in the CR Full Leg Full Spine option for NX Workstations User Manual, document 4408.

CR FLFS cassettes are available for the following Agfa Digitizers: ADC Compact, ADC Solo, ADC Compact Plus, CR 25.0, CR 75.0, CR 35-X and CR 85-X. For other Agfa digitizers the Full Leg Full Spine application is covered by the General 14"x17" cassette.

CR Mammography Application

CR Mammo plates and cassettes are part of the CR Mammography Solution. The CR Mammography Solution can be used in a safe and effective way for diagnostic mammography.

CR Mammo cassettes can only be used in the CR 85-X, CR 35-X, CR 25.0 and CR 75.0 Digitizer if the CR Mammo application option is installed on the system.

Whenever the position of the CR plate changes in the cassette due to mechanical impact (e.g. dropping on the floor), the CR plate is to be realigned manually as to make sure that the edge is near the hinge of the cassette.

CR Extremities Application

CR Extremities sets (plates and cassettes) are intended for use in extremities applications (e.g. for rheumatologic examinations of hands and feet), they cannot be used for any other application.

CR Extremities cassettes can only be used in the CR 85-X, CR 35-X, CR 25.0 and CR 75.0 Digitizer.

CR Extremities cassettes are initialized in production with the code “Very High Resolution”. Changing initialization of CR Extremities cassettes is only possible with QS 3.0 and higher or NX.

Ideally, the Extremities cassettes are used in Extremities examinations lower than 55 kV.

CR Radiotherapy Application

CR Radiotherapy plates and cassettes are part of the CR Radiotherapy Solution and are intended for use in acquisition of low dose and high dose portal imaging (we refer to the CR Radiotherapy Solution manual).

CR Radiotherapy cassettes can only be used in the CR 25.0 Digitizer and only if the necessary software is installed on the workstation.

The CR Radiotherapy cassettes contain a metal sheet as an important precision component. This metal sheet is fragile and brittle, and may break when dropped. Therefore the cassette should be handled with care.



CAUTION:

In case the cassette has suffered mechanical impact (e.g. has been dropped), the cassette should be inspected for visible damage to the metal sheet. In case the metal sheet has been damaged, further use of the cassette should be avoided as it may result in severe damage to the Digitizer.

Operation Controls

The black side of the cassette is the tube side, which must be facing the X-ray source during X-ray exposure.

Installation

Topics:

- *Initializing the Cassette with PRID*
- *Initializing the Cassette with QS*
- *Initializing the Cassette with NX*

Initializing the Cassette with PRID



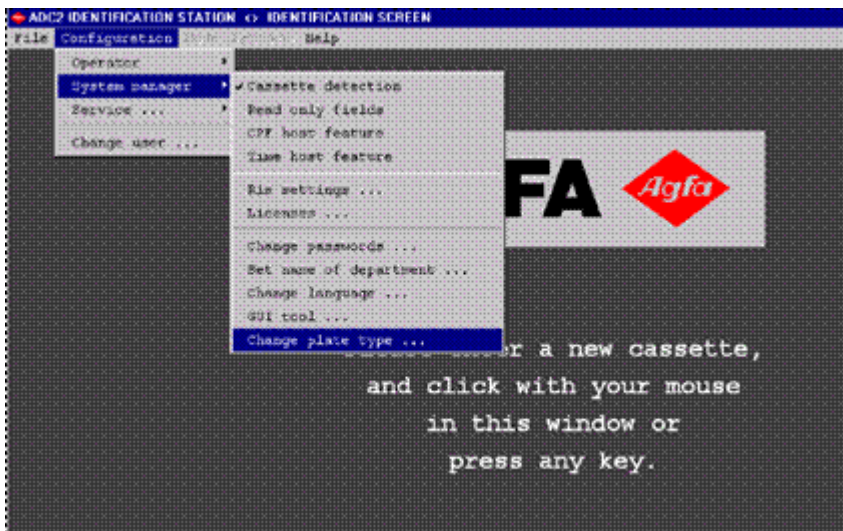
Note: You must log on as system manager. You will need the system manager password.



Note: Your CR System must be equipped with Identification software version 1.1.0.9 or higher. To check this, click Version on the Help menu.

To initialize the cassette with PRID:

1. Start the Identification software.
2. On the Configuration menu, click System manager and then click Change plate type.



3. Insert the cassette in the cassette slot of the ID Tablet.
4. Select the initialization code you find on the CR plate and click Write.
5. Repeat steps 3 and 4 for each cassette which must be initialized.

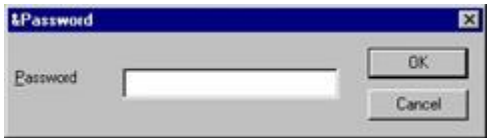
Initializing the Cassette with QS



Note: You must log on as system manager. You will need the system manager password.

To initialize the cassette with QS:

- 1. Start the ID Viewer Software.
- 2. On the Tools menu, click Change plate type and enter the password.



- 3. Insert the cassette in the cassette slot of the ID Tablet.
- 4. Select the initialization code you find on the CR plate and click Write.



- 5. Repeat steps 3 and 4 for each cassette which must be initialized.

Initializing the Cassette with NX



Note: You must either log on as Administrator (you will need the administrator password) or see to it that you have administrator rights (in the Queue Management section of the NX Workstation Operation Roles).

Topics:

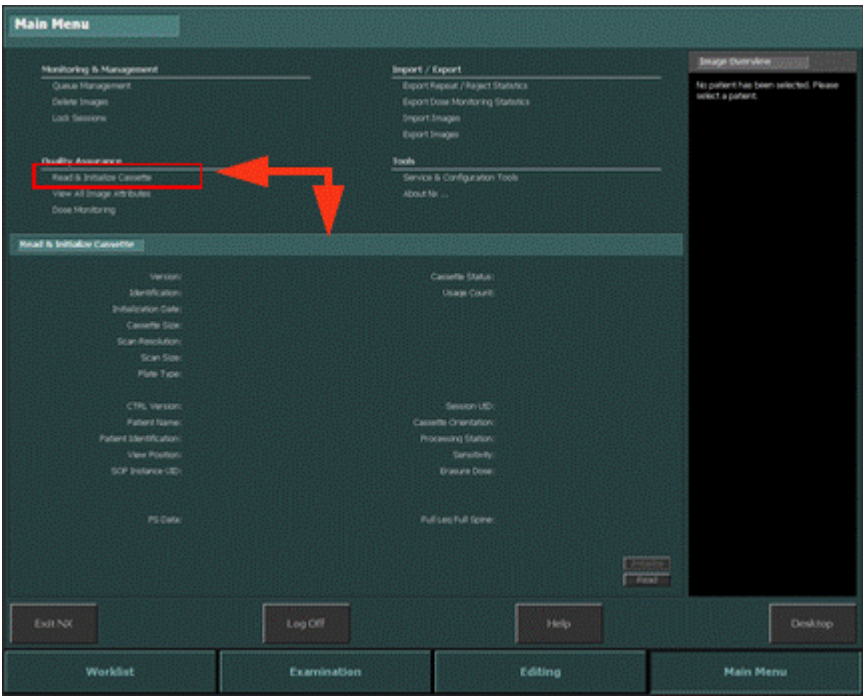
- *Configuration with ID Tablet*
- *Configuration with Fast ID*

Configuration with ID Tablet

To initialize a cassette (write initial information on a cassette) in a configuration with ID Tablet:

1. Click **Read and Initialize Cassette** in the Functionality Overview pane of the Main Menu window.

The Read and Initialize Cassette pane is opened in the middle section of the Main Menu window:



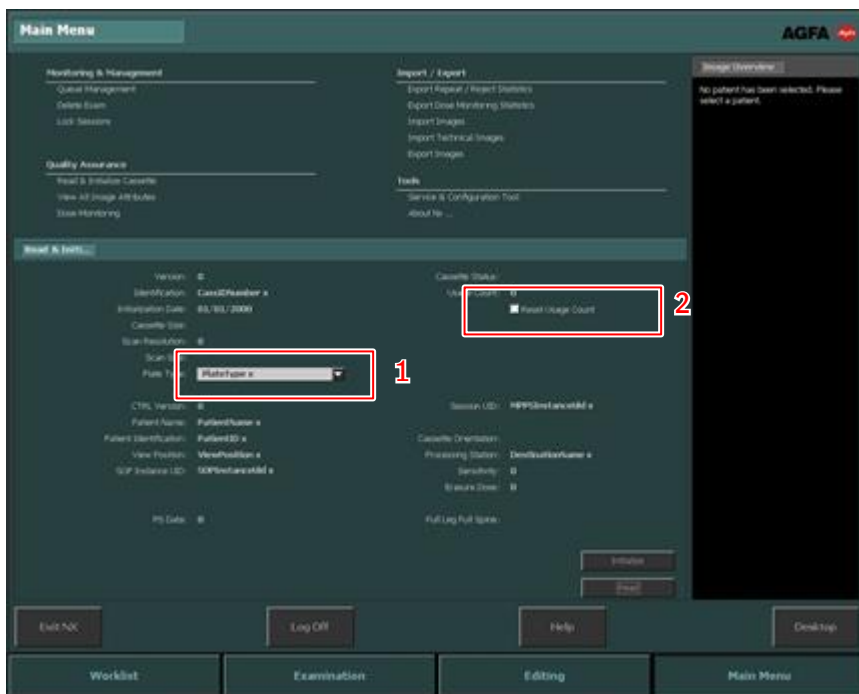
2. Insert a cassette in the ID Tablet.
3. Click **Read**.

The Read and Initialize Cassette pane is filled with the details of the inserted cassette.

Two attributes of the cassette can be changed here.

- Plate type (1). Here you enter the initialization code printed on the CR plate.
- Usage count (2). This is the number of times the cassette has been scanned. You can reset this counter.

The other attributes are read only.

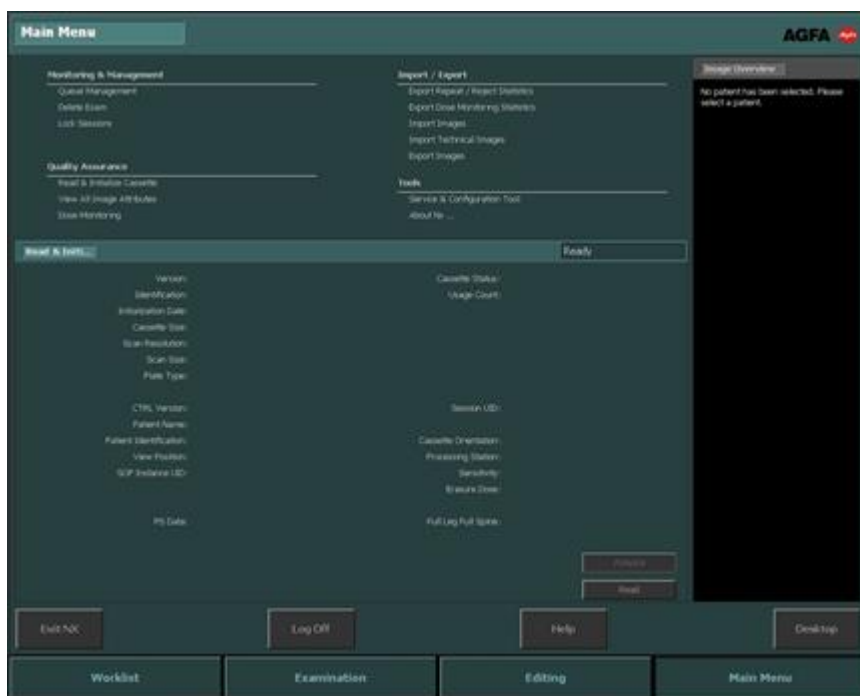


If the information is OK, you can proceed with initializing the cassette.

4. Click **Initialize**.

The information is now written to the cassette.

Once initialization has been completed, all fields are cleared so that the same procedure may be performed for subsequent cassettes.

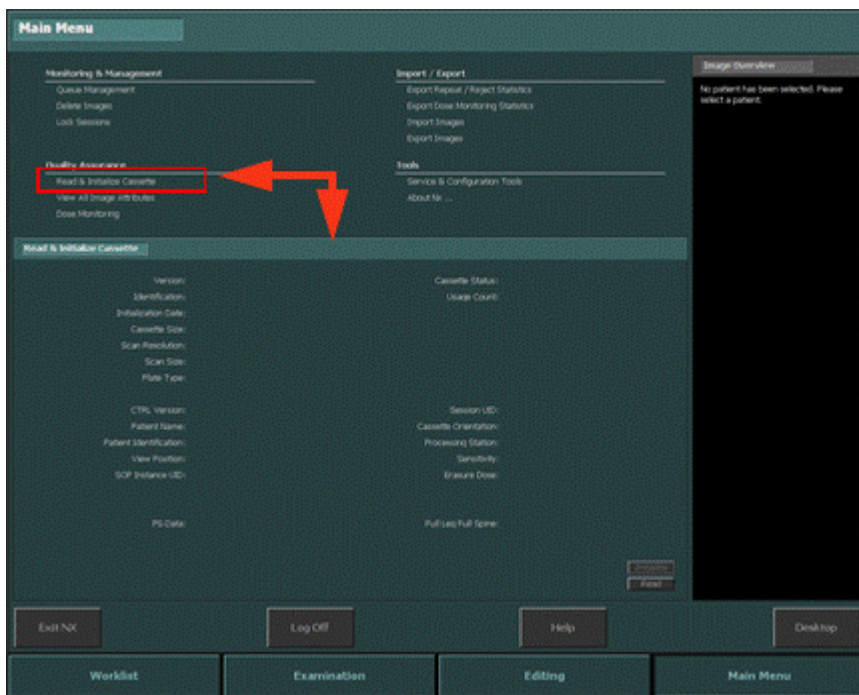


Configuration with Fast ID

To initialize a cassette (write initial information on a cassette) in a configuration with Fast ID:

1. Click **Read and Initialize Cassette** in the Functionality Overview pane of the Main Menu window.

The Read and Initialize Cassette pane is opened in the middle section of the Main Menu window:



2. Click **Read**

A signal is now sent to the Digitizer, indicating that the next cassette is entered in order to read and change cassette attributes, not for digitizing images.

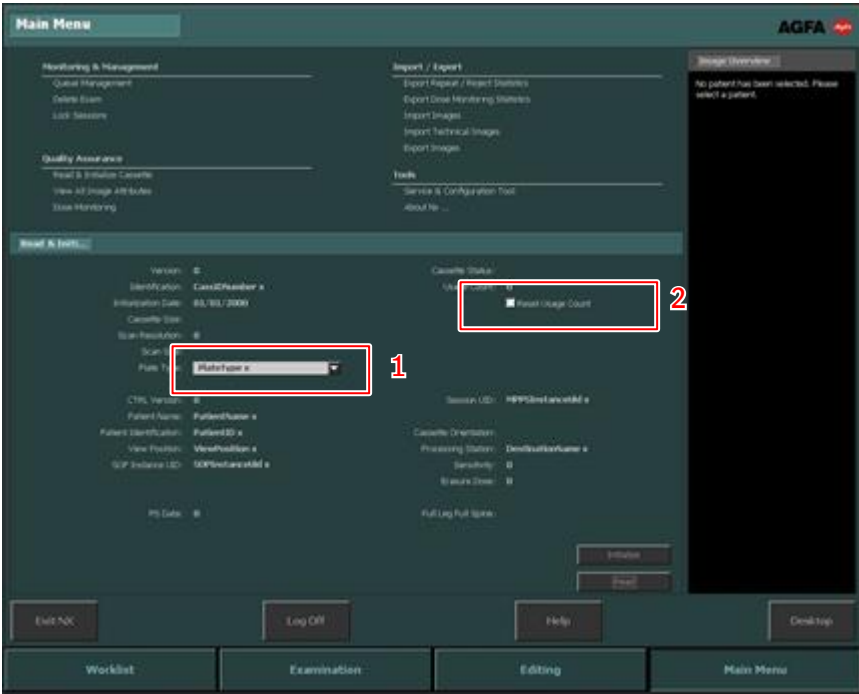
3. Insert the cassette in the Digitizer.

The Read and Initialize Cassette pane is filled with the details of the inserted cassette.

Two attributes of the cassette can be changed here.

- Plate type (1). Here you enter the initialization code printed on the CR plate.
- Usage count (2). This is the number of times the cassette has been scanned. You can reset this counter.

The other attributes are read only.



If the information is OK, you can proceed with initializing the cassette.

Cleaning

Topics:

- *Cleaning the CR Image Plate*
- *Cleaning the Cassette*
- *Cleaning CR Mammo Plates*
- *Cleaning CR Extremities Plates*
- *Cleaning CR Radiotherapy Cassettes*
- *Disinfecting the Cassettes*

Cleaning the CR Image Plate



Note: Please make sure that the CR plate always goes into the same cassette when cleaning. With the introduction of new initialization codes, it is important that the CR plate does not end up in a cassette initialized for another code. In case of doubt, you should re-initialize the cassette using the initialization code on the CR plate (for more information, refer to “Cassettes Containing CR Plates”).

When to clean the CR image plate?

At least once every month or whenever there is doubt about particles visible on the X ray images.

More frequent cleaning is required for CR Mammo plates (refer to “Cleaning CR Mammo Plates”).

More frequent cleaning is also required in case of excessive dust or under very dry conditions. (The screen cleaner contains antistatic agents which reduce buildup of static charges and dust collection.)

Permitted cleaning products?

Use only AGFA CR Phosphor Plate Cleaner and a soft lint-free cellulose cloth to clean the plate.

CR MM3.0 image plates with a batch code starting with the letter “B” or a number require dedicated wipers. Refer to “Cleaning CR Mammo Plates” for specific instructions.

How to clean the CR image plate?

Moisten the cloth with cleaner and wipe the plate surface softly and evenly (phosphorous side and rear side).

Leave the plate surface to dry for about 10 minutes to allow the solvents to evaporate.

Once the plate surface is dry (after about 10 minutes), check once again for particles of material and other impurities before placing the plate in the cassette.

Related Links

[Cleaning CR Mammo Plates](#) on page 30

[Cassettes Containing CR Plates](#) on page 10

Cleaning the Cassette

When an increased number of dust particles is still visible in the image despite regular cleaning, you should clean the cassette.

Clean the inside of the cassette thoroughly. The recommended procedure is to tap the cassette to remove dust and dirt particles.

When necessary, you can clean the outside of the CR cassettes, preferably only with a wet cloth (water, soap). For 'heavy' spots use Curix Screen Cleaner. Isopropanol is allowed as well.

All disinfectors carry the risk that cassettes can be damaged.



WARNING:

If Curix Screen Cleaner or isopropanol are used, do not pour them direct on the cassette. First moisten a cloth with cleaner and wipe off the cassette.



Note: If a cassette may get into contact with body fluids, protect the cassette with a plastic envelop.

Cleaning CR Mammo Plates



CAUTION:

When cleaning CR MM3.0 image plates with a batch code starting with the letter “B” or a number, only use PROSAT wipers (Custom) intended for these plates.

CR Mammo plates require frequent cleaning: at least once a week or after every 200 cycles (whatever comes first).

The wipers can only be used once, but different image plates can be cleaned one after the other with one wiper.

Use only PROSAT wipers purchased from Agfa or an Agfa certified dealer.

Storage: carefully close the bag of PROSAT wipers. Agfa recommends to keep the wipers in a cool place to optimize its effectiveness. Take the instructions on the packaging into account.

When cleaning CR MM3.0 image plates, leave the plate surface to dry for about one (1) minute before putting the plate back into the cassette.

Cleaning CR Extremities Plates

**CAUTION:**

When cleaning CR MM3.0 image plates with a batch code starting with the letter “B” or a number, only use PROSAT wipers (Custom) intended for these plates.

The wipers can only be used once, but different image plates can be cleaned one after the other with one wiper.

Use only PROSAT wipers purchased from Agfa or an Agfa certified dealer.

Storage: carefully close the bag of PROSAT wipers. Agfa recommends to keep the wipers in a cool place to optimize its effectiveness. Take the instructions on the packaging into account.

When cleaning CR MM3.0 image plates, leave the plate surface to dry for about one (1) minute before putting the plate back into the cassette.

Cleaning CR Radiotherapy Cassettes

Touching the surface of the metal sheet in the CR Radiotherapy cassette should be avoided, the surface of the metal sheet may be cleaned using a soft lint-free cellulose cloth.

Disinfecting the Cassettes

To disinfect the cassettes, use only disinfectants approved by Agfa (see list of Approved disinfectants). If you plan to use other disinfectants, approval of AGFA is needed before use, as most disinfectants can damage the cassette. UV disinfection is also not allowed.

For detailed information on how to apply disinfection, refer to the instructions for use that are delivered with the disinfectant.

Topics:

- *Approved disinfectants*
- *Use of protective plastic envelope*
- *Safety directions for disinfection*

Approved disinfectants

Refer to the Agfa website for specifications on the disinfectants that have been found compatible with the cassette material and can be used on the outer surface of the cassette.

<http://www.agfahealthcare.com/global/en/library/overview.jsp?ID=37134794>

<http://www.agfahealthcare.com/global/en/library/overview.jsp?ID=45445721>

Use of protective plastic envelope

If the cassette is used in an environment where disinfection is required or where it may get into contact with blood or other body fluids, use plastic envelopes to protect the cassette from direct patient contact. Make sure that the plastic envelope is not wrinkled to avoid the creases showing in the image.

Safety directions for disinfection

**CAUTION:**

All appropriate policies and procedures should be followed to avoid contamination of the staff, patients and equipment.

**CAUTION:**

Make sure that the equipment is properly decontaminated and disinfected before shipment or servicing.

**CAUTION:**

The selection and description of the appropriate disinfection procedure and policy is the responsibility of the user.

**WARNING:**

Do follow the instructions of use as provided with the cleaning or disinfection product.

**CAUTION:**

Before disinfecting the cassette, remove the image plate and assure that the cassette is clean.

**CAUTION:**

Be sure that all surfaces are thoroughly dry before returning the equipment to use. Disinfecting solution may cause skin irritation to the patient.

**CAUTION:**

Disinfecting solution or wipes may cause eye and skin irritation. Wear gloves and wash hands with soap and water following use. Consult the manufacturer's Material Safety Data Sheets (MSDS) and recommendations on the product label for additional information prior to use.



Do not pour liquid directly on the cassette. Always use a low-linting cloth dampened (not dripping) with the solution.

Environmental Protection

Topics:

- *CR Plate*
- *CR Cassette*

CR Plate

Regulations about waste disposal may differ from one country to another. Please consult local regulations on the subject matter.

At the end of its life cycle, the CR Plate is considered as industrial waste in most countries.

Consequently it is not allowed to dispose of it as household waste. We recommend to have it hauled away by a licensed company.

When the CR Plate is disposed of through incineration, the nature of the combustion products is dependent on the physical characteristics of the burning process and on the degree of combustion, whereby different gases can be generated, such as e.g. water vapor, carbon dioxide, carbon monoxide and small concentrations of organic and inorganic degradation products.

Disposal

Waste codes applicable for European Union:

	Plates containing storage phosphor
Product	09 01 99 Waste not otherwise specified
Packaging	15 01 06 Mixed packaging

Information applicable for USA:

	Plates containing barium
Product	These plates, when discarded, are a hazardous waste (EPA waste code D005) under the Resource Conservation and Recovery Act (RCRA) due to the leachability of barium. Hazardous waste must be managed and transported in accordance with federal, state, and local regulations. Please contact your local authorities for more information.

CR Cassette

The cassette shall not be treated as household waste.


For more detailed information about take-back and proper recycling of this product, please contact your local sales representative.

This information applies to the cassette only, excluding the plate or screen.

Topics:

- *Labeling*
- *Disposal*

Labeling

	<p>This label on the cassette indicates that the cassette contains lead.</p>
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Disposal

Waste codes applicable for European Union:

	Cassettes containing lead	Cassettes not containing lead
Product	16 02 13* Discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12	16 02 14 Discarded equipment other than those mentioned in 16 02 09 to 16 02 13
Packaging	15 01 06 Mixed packaging	15 01 06 Mixed packaging

Information applicable for USA:

	Cassettes containing lead
Product	These cassettes, when discarded, are a hazardous waste (EPA waste code D008) under the Resource Conservation and Recovery Act (RCRA) due to the leachability of lead. Hazardous waste must be managed and transported in accordance with federal, state, and local regulations. Please contact your local authorities for more information.

Safety Directions

Topics:

- *General Safety Instructions*
- *Maximum Cassette Load*
- *Fire Hazard and Extinguishing Media*
- *Precautionary Measures*

General Safety Instructions

CR plates and cassettes will not cause any special health or safety hazard, if they are used as intended.



CAUTION:

Strictly observe all warnings, cautions, notes and safety markings within this document and on the product.



CAUTION:

All Agfa medical products must be used by trained and qualified personnel.



WARNING:

The user is responsible for judging image quality and controlling environmental conditions for diagnostic softcopy or print viewing.



WARNING:

The user must follow the hospital quality assurance procedures for covering the risks resulting from errors in the image processing



CAUTION:

Changes, additions or maintenance to the Agfa products carried out by persons without appropriate qualification and training as well as using unapproved spare parts may lead to serious risk of injury and damage to the equipment as well as making the warranty void.

Maximum Cassette Load

The maximum allowed weight load on the cassette is 150 kg over the whole area of the cassette surface.

The cassette must be lying on a flat and stable floor.

For foot exams, the patient should always stand in the center of the cassette.

Fire Hazard and Extinguishing Media

The screen base is made of polyethylene terephthalate and meets the "Safety Film" specifications as described in ISO 18906-2000. Safety film passes the ignition time test when the ignition time is longer than or equals 10 minutes. It passes the burning time test when the burning time is longer than 45 seconds for a film thickness larger than or equal to 0.08 mm or when the burning time is longer than 30 seconds for a film thickness smaller than 0.08 mm. The nature of the combustion products depends on the physical characteristics of the burning process and on the degree of combustion, whereby different gases can be generated, such as e.g. water vapor, carbon dioxide, carbon monoxide and small concentrations of organic and inorganic degradation products.

Fire extinguishing media:

- water spray,
- carbon dioxide,
- extinguishing powder,
- foam.

Precautionary Measures

Go through the following precautionary measures:

- First use and normal operation
 - When using new CR plates, these need to be manually erased twice before use.
 - After not having used the CR plates for 48 hours, they equally need to be manually erased.
 - CR plates and cassettes should only be used with CR equipment.
 - CR Radiotherapy cassettes need special precautions towards exposure, erasure of the plate (e.g. if not used regularly) and physical handling of cassettes. We refer to the CR Radiotherapy Solution manual.
- Transport
 - Protect the plates from high temperatures during transport - max. 43°C (110°F).
 - Take the precautions necessary to ensure that the plates remain protected from impact.
 - Stack a maximum of 5 plates in cardboard packaging one upon the other.
- Storage
 - Temperature and humidity levels:

Packaged		< 34°C (93°F)
Not packaged	Temperature	15°C - 34°C (59°F - 93°F)
	Relative humidity	30 - 80%

- To avoid any deformation, always store the plates horizontally on a flat surface.
 - Avoid placing any excessive loads on the top of the plate. Store a maximum of 5 plates one on top of the other.
 - Avoid UV rays or direct sunlight.
- Handling

The necessary precautions must be taken when handling the plates to avoid scratches or damage. Any damage to the plates, of whatever nature, will be visible in the image.