

Continued symptoms or recurrent more frequent	% of the sample that it undergoes them
Dolores of head	39,4
Carraspera/ronquera	32,8
Inmotivada fatigue	25,8
Irritation of eyes	23,4
Badly mouth flavor	22,6
Problems of senos/flujo nasal	19,6
Persistent symptoms of resfriado	17,6
Cold	16,9
Dolores you will articulate	12,9
Sores in the mouth	11,6
Cutaneous eruptions	10,0
Pain pecho/dificultades respiratory.	7,1

PICTURE 2
Risks of used products more in the automatic processing

N° CAS	NAME OF THE COMPOUND	PHRASES R	EFFECTS FOR THE HEALTH
(123-31-9)	HYDROQUINONE 604-005-00-4	R 20/22	Injurious by inhalation and ingestion
(7785-23-1)	SILVER BROMIDE	Not classified	
(584-08-7)	POTASSIUM CARBONATE	Not classified	
(7757-83-7)	SULPHATE SÓDICO	Not classified	
7758-02-3)	POTASSIUM BROMIDE	Not classified	
(298-14-6)	BICARBONATE POTASICO	Not classified	
(7783-18-8)	AMMONIC TISULFATO	Not classified	
(7740-22-4)	METALLIC SILVER	Not classified	
(7746-09-5)	SULFUR DIOXIDE 016-011-00-9	R 23	Toxic by inhalation
(50-00-0)	FORMALDEHYDE 605-001-00-5	R 23/24/25 R 34 R 40 R 43	Toxic by inhalation by ingestion and in contact with the skin It causes burns Possibility of irreversible effects Possibility of sensibilización in contact with the skin
(64-19-7)	ACETIC ACID 607-002-00-6	R 10 R 35	Inflammable It causes serious burns
(7664-41-7)	AMMONIA 007-001-00-2	R 10 R 23 R 34	Inflammable Toxic by inhalation It causes burns
(92-43-3)	FENIDONA (1-Genil-3Pirazolidona) 606-022-00-2	R22	Injurious by ingestion
(111-46-6)	DIETILENGLICOL	Not classified	

(111-30-80)	GLUTARALDEHIDO 605-022-00-X	R 23/25 R 34 R 42	Toxic by inhalation and ingestion It causes burns Possibility of sensitivity by inhalation
(1310-58-3)	POTASSIUM HIDRÓXIDO 019-002-00-8	R 35	It causes serious burns
(16828-11-8)	ALUMINUM SULPHATE	Not classified	

The most important symptoms in the call disease of "darkroom" are: irritation of the eyes, the lips, unloads repeated nasal, cold, sinusitis, laryngitis, traqueitis and bronchitis.

These symptoms are usual in any exhibition to chemical agents. Less clear they are the sistémicos symptoms that they would include the descamación of the skin, ulcers in the mouth, hummings in the ears, headaches, ronquera, you feel nauseous, pain chest, excessive fatigue, cardiac arrhythmia, prostatitis, pains you will articulate, entumecimiento and paralysis of the vocal cords. The symptoms change according to individual sensitivity.

Recommendations

1. *Generals*

In general, for the handling of the solutions concentrated contained in the bottles of the revealer and the locking device they can produce irritation in the skin and burns in the eyes. The contact of these products with the skin or the eyes must be avoided, taking the had precautions.

In the case of **the revealer** when containing fenol can produce cutaneous irritations to sensible people to this. Therefore he is recommendable to use rubber gloves or to wash the hands well after its manipulation.

In the case of **the locking device**, this also it can cause cutaneous irritations, therefore the use of gloves or the careful washing is also recommended after its use. Also, when containing acetic acid (25%, are irritating for the eyes and the skin).

For the safest use of the processor we will see a series of concrete points:

- Handling of the processor:
 - Mixture of chemical agents.
 - Cleaning of the processor.
 - Elimination of the used locking device and the spent revealer.
- Actions:
 - To read the instructions of the manufacturer.
 - To avoid the steam inhalation.
 - To use mask when the liquids are mixed, when the processor is cleaned and whenever it is required to open it.
 - To avoid the cutaneous contact.
 - To use rubber gloves.
- Ventilation:
 - To use the system of ventilation provided by the manufacturer.
 - The ventilation must operate day and night, to avoid the accumulation.
 - To assure a fresh air intake in the zone work.
 - The steam coming from the processor must be conducted outside the building.
- Hygiene in darkroom:
 - The chemical substances already used do not have to be recycle nor to be stored in the work area. They must be located directly in containers located in a special zone of storage of which the laws and local environmental regulations can retire easily in agreement with.

- A strict hygiene must be observed.
- Tables of work and grounds must be cleaned immediately after some spill.
- The used locking device does not have to be left without the lid or in the processing area.
- A water-drainage in the ground will exist that allows to evacuate any chemical spill. All the surface around the same one will have to be sealed to assure that the spill does not soak the ground.
- What must and does not have become:
 - Manténgase separated from the zone of processing unless it is working there then.
 - The chemical substances must be stored correctly following the instructions of the manufacturer and the effective specific legislation.
 - Not to keep personal objects like dressing gowns, clothes, purses, etc. in the dark camera.
 - Not to smoke in the processing area.
 - Not to eat nor to drink in zones of processing.
 - The indicated effects and symptoms previously can be come up following the recommendations with the manufacturer and the specific legislation for used products.
 - Before any doubt to consult with the supervisor or person in charge of the Unit of Radiodiagnóstico.
- Signals of alert:
 - Hard scent to chemical substances in the work place:
 - Before this to verify the processor in case they appear conductions in badly been, or the water-drainage is broken.
- Procedures of emergency:
 - - the splashes must be cleaned immediately using water to dilute the chemical substances.
 - - a great spill must be absorbed with dry sand or serrín when water-drainage does not exist.
 - - rubber gloves Must be used.
- First aid:
 - Cutaneous contamination: To immediately wash with abundant water and neutral soap.
 - Steam inhalation: The victim will have immediately to be transferred to zone of fresh air. Artificial respiration if the breathing has stopped.
 - Ocular splash: To wash the eyes with abundant water during 15 minutes, if the irritation persists or the contact degree has been severe, to look for medical aid.

2. **For the manipulation of products of automatic processing**

- The products of revealed and fixed concentrated contents to the bottles can produce irritation in the skin and burns in the eyes. The contact of these products with skin and eyes must be avoided.
- In the case of the reveler when containing fenol can produce cutaneous irritations to sensible people to this one. Therefore he is recommendable to use rubber gloves or to wash the hands well after its manipulation.
- In the case of the locking device also it can cause cutaneous irritations, therefore, the use of gloves or the washing is recommended after its use. Also, when containing acetic acid < 25 %, is irritating for eyes and skin.

Also it is observed that *the temperatures* of superior products of processing to 30° or and *the agitation* in the processors of such, can generate *aerosols* that escape of the machines. Also *the hot air* used to dry the films can spread to steam and aerosols to the room. In addition also a small exhibition to aerosols would take place, approximately once to the week, when chemical agents in the mixer one are prepared.

Also aerosols can take place when the processor unloads the solutions spent in the water-drainages.

In order to palliate the problems derived from steam and aerosols the solution is a suitable *ventilation*.

The spilling of liquids coming from the processor also can give rise to risks for the health reason why they must be controlled effectively.

3. **For the control of product escape coming from the processor**

According to the mentioned study of the Society of Radiógrafos of the United Kingdom, there are three signs of which is escape in a processor:

- Recurrent scent in the zone.
- Chemical agent spilling of the deposits or pipes.
- Crystal deposit in the processor or zone of processing.

The control of these flights as much of the processors as of the chemical agent deposits must be inspected once per week in case some of the mentioned signs of chemical flight exists. These flights will be repaired before the 24 hours of their discovery. The spilled liquid will be cleaned immediately.

4. **For the system of ventilation of darkroom**

5. In the darkrooms suitable methods of ventilation are required since a bad ventilation has detrimental effects in the health of the workers. The air must be filtered to eliminate dust particles and the air circulation must be sufficient like changing to the air of darkroom twelve times to the hour, avoiding the steam accumulation emanated of the processing liquids. In order to obtain these objectives several systems can be used:

- **Direct escape:** the steam would have a direct exit from the processor, that would be connected to some system of escape of the building.
- **General ventilation with bell:** another possibility would be the installation of a great bell on the processor and its connection to a ventilator. Also he is recommendable that the rates of air renovation in the darkrooms are elevated.
- **Mask:** the aerosols, gases and many steam can filter effectively isolating them of the air that we breathed. The use of masks would have to be considered as complement to the ventilation and to take them whenever reveler or locking device is prepared. In addition they are very useful when the processor is opened.

Conclusions

The respiratory and cutaneous diseases are signs little recognized associated the automatic processing of radiográficas films. A joint effort of diverse specialists in matters like the security, the labor health would be important to approach these risks effectively, medical specialists in professional, engineer diseases with ample knowledge in ventilation and ergónomos.

It is necessary also that the people in charge of the departments of diagnosis by image are conscious of these diseases, and take care of the complaints of the workers in the matter of health and adopt the measures of prevention or correction in their case, fast and effectively. In order to obtain this last one it is fundamental that this group to multidiscipline, before mentioned, contributes each one solutions and recommendations in their field:

- Technicians of security: control of engineering and individual protective equipment.
- Doctors of the work: diagnóstica and therapeutic attention.
- Ergónomos: accomodation of the job.
- Specialists in representation of images (Radiologists, Technicians in Radiology, Technicians of Application, etc.): selection of the suitable equipment more for the volume of work, place where it must go located the dark camera, type of explorations, etc.

These interventions would turn out very useful to contribute to the prevention of the diseases and the professional incapacities.

In spite of previously the saying, at the present time, all the services of Diagnosis by Image tend to transform the conventional systems of obtaining of image by the digitalization system, which will allow to change in the great majority of the explorations the conventional processing by the System of Dry Processing (systems laser which they use image supports thermus-estimulable). This process, that given its high present economic cost, is not possible to implant immediately, will be adopted gradually like substitute of the traditional methods, thus avoiding, all the risks for the health and the environmental contamination derived from used chemical agents in the humid processing.

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