



KODAK X-OMAT LE+ Developer and Replenisher

1) Description

KODAK X-OMAT LE+ Developer and Replenisher is a universal, single-part concentrate developer used to process all types of medical imaging films. The developer maintains the high photographic performances of the conventional line of developers with hardener, and is compatible with existing processing cycles of 38 seconds or longer.

2) Features

- Outstanding image quality including high contrast and cold image tone.
- Strengthened "activation power" which allows for fast processing and high productivity.
- High chemical stability - Consistent image quality over an extended period of time and low sludge formation.
- Reduced replenishment rate with KODAK green sensitive films (T-MAT's, XDA Plus, XLA Plus, INSIGHT/X-SIGHT) which produce savings in chemical usage and reduced chemical overflow. The image tone of the films gets slightly warmer when lowering the replenishment rate.
- NO Glutaraldehyde - No poisonous emissions.
- NO Phenidone - Reduced environmental impact.
- NO starter solution required.
- Concentrated liquid developer (single-part) - provides ease of use, is compatible with "Mixer in Line" systems, and has reduced quantities of plastic to dispose of.

3) Directions for Use

The mixing kit for KODAK X-OMAT LE+ Developer Replenisher is supplied in a quantity to prepare 40 litres (2 x 20 litres) of working solution, and consists of No. 2 x 5 litre plastic containers of concentrated developer solution.

Note: KODAK X-OMAT LE+ Developer and Replenisher is not compatible with the KODAK RP X-OMAT or KODAK RP X-OMAT EX Developers.

A. Making up developer replenisher (2 x 20 litre kit) for 20 litres of developer replenisher solution:

1. Put 15 litres of water (10 to 30°C / 50 to 86°F) into a container.
2. Add the contents of one canister of single concentrated solution, stirring continuously.
3. Stir for about 30 seconds until a completely homogeneous solution is obtained.

B. To prepare 40 litres of developer replenisher solution:

1. Put 30 litres of water (10 to 30°C / 50 to 86°F) into a container.
2. Add the contents of both canisters of concentrated solution. Stir continuously.
3. Stir for about 30 seconds until a completely homogeneous solution is obtained. The KODAK X-OMAT LE+ Developer Replenisher does NOT require a starter solution.

Note: To mix the KODAK X-OMAT LE+ Developer Replenisher using an automatic mixer may require an adjustment of the sensor levels.

C. Replenishment:

The consistency of the radiographic quality is related to the accurate adjustment of the replenishment rate. The replenishment should maintain the chemical equilibrium in the developer, replacing the components used by the film.

To obtain an accurate setting of the rate, two factors should be considered:

1. A low film usage requires the compensation of the evaporation and oxidation of the processing chemicals, leading to a higher rate of replenishment.
2. The film type (ratio of double/single-sided emulsion) and exposure technique produce a variable average density, thus requiring further adjustment of the replenishment rate.

An accurate monitoring system is required to verify the correct replenishment rates.

The following table indicates the correct integration volume based on the film usage (m²) of the single/double sided films. For a medium productivity processing machine (e.g. KODAK RA 3000, XP515) the recommended volumes for 0.5 m² of film processed are the following:

Ratio double sided film/single sided film		<25%	25 - 75%	>75%	100%
Daily film usage	<5 m ²	300 ml	280 ml	260 ml	250 ml
“	5/15 m ²	240 ml	220 ml	200 ml	180 ml
“	>15m ²	220 ml	200 ml	180 ml	160 ml

For a low productivity processing machine (e.g. KODAK M35, XP2000) the recommended volumes for 0.5 m² of film processed are the following:

Ratio double sided film/single sided film		<25%	25 - 75%	>75%	100%
Daily film usage	<5 m ²	320 ml	300 ml	280 ml	270 ml
“	5/15 m ²	260 ml	240 ml	220 ml	200 ml
“	>15m ²	240 ml	220 ml	200 ml	180 ml

D. Storage:

To guarantee the excellent characteristics, KODAK X-OMAT LE+ Developer Replenisher must be stored in the original package, at a temperature between 5 - 30°C (41 - 86°F). In these conditions, the lifetime is two years.

E. Hazards:

pH = 11.15: contains hydroquinone, potassium and sodium sulfites, potassium carbonate, and potassium bromide.

IRRITANT to eyes and skin. May cause sensitization by skin contact. May be harmful if swallowed.

Avoid contact with eyes: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Avoid contact with skin: if any skin contact occurs, wash immediately with plenty of water.

4) Graphs¹

Developer Time/Temperature (°C):

A) (5-00)

This graph indicates the ratio between time (sec.) and temperature for the immersion of the film in the development tank. The 20 seconds in the developer represents a development rate of 90 seconds total cycle time for an XP515 Processor. However at the high productivity rate of 38 seconds (total cycle), the development time is only 8 seconds.

Notice: Observe precautionary information on product labels and on the Material Safety Data Sheets.

The contents of this publication are subject to change without notice.

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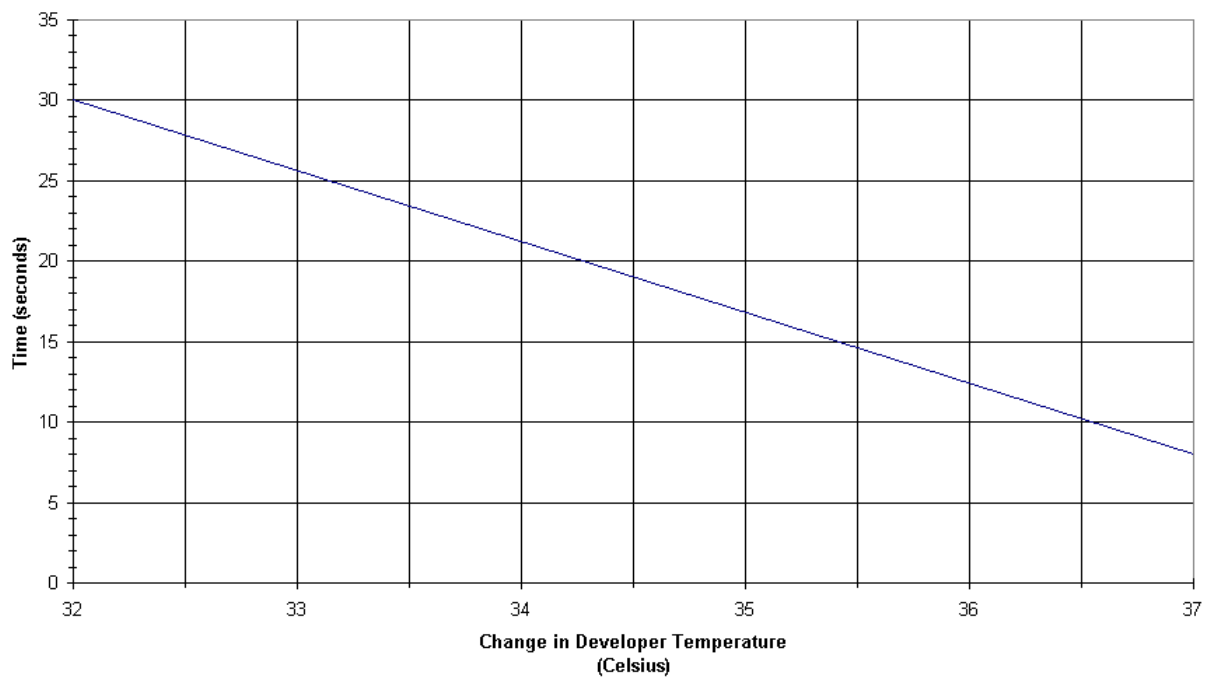
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End of Data Sheet

¹NOTICE: The sensitometric curves and data in this publication represent product tested under the conditions of exposure and processing specified. They are representative of production coatings, and therefore do not apply to a particular box or roll of photographic material. They do not represent standards or specifications that must be met by Eastman Kodak Company. The company reserves the right to change and improve product characteristics at any time.

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DEVELOPER TIME/TEMPERATURE VARIATION, For Publication

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This graph indicates the ratio between time and temperature
for the immersion of the film in the development tank.



Notice: While the data presented are typical of production coatings, they do not represent standards which must be met by Eastman Kodak Company. Varying storage, exposure and processing conditions will affect results. The company reserves the right to change and improve product characteristics at any time.