

# INDUX R3

## INDUSTRIAL X-RAY FILM

### General information

INDUX R3 is an industrial radiographic film intended for non-destructive material testing using X- or gamma radiation.

INDUX R3 is a low-speed, high-contrast, extremely fine-grain film with excellent sharpness suitable for radiography with or without lead screens.

Dimensions and speeds of inserted films according to customer's individual requirements.

Film INDUX R3 corresponds with the class C2 classification according to EN ISO 11699-1 standard and according to ASTM E 1815 standard with class I.

### Applications

INDUX R3 is suitable for applications requiring exact resolution in details like inspection of electronic components, ceramic particles, castings, nuclear components, in cosmic research, aircraft and shipping industry.

### Packaging forms

daylight packaging (FOMAPAK) – one-sheet vacuum-sealed packaging with lead screens of 0,025 mm thickness

Sizes: 6x10, 6x12, 6x16, 6x20, 6x24, 6x30, 6x40, 6x48, 10x10, 10x12, 10x16, 10x20, 10x24, 10x30, 10x40, 10x48, 18x24, 30x40 cm in boxes and other sizes according to an agreement with manufacturer.

The vacuum-sealed packaging FOMAPAK ensures optimum contact of film surface with lead screens, simple handling, and is light-tight, air-tight and waterproof.

darkroom packaging (KB)

Sizes: 6x24, 6x40, 6x48, 10x12, 10x20, 10x24, 10x40, 10x48, 10x72, 18x24, 30x40 cm in boxes and other sizes according to an agreement with manufacturer.

MultiPack – daily package containing 2 films INDUX with various speeds.

Dimensions and speeds of inserted films according to customer's individual requirements.

### Film base

INDUX R3 is manufactured on a dimensionally stable bluish polyester base of 0,175 mm thickness.

### Screens

Screens-packed kinds (FOMAPAK) contain lead screens 0,025 mm thick, backed by a paper of 70 - 90 g/sq. m of basic weight, on both film sides.

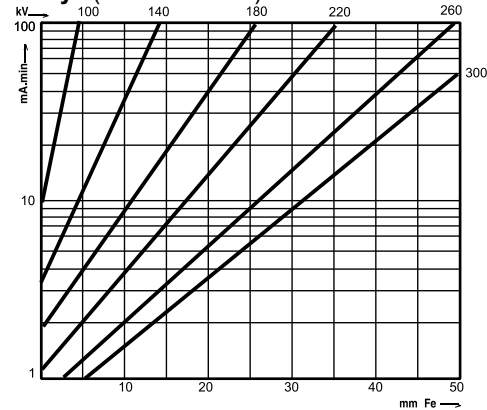
### Darkroom illumination

The film is processed at yellow safety illumination with wavelength of 590 nm and higher. Length of exposure and a distance of the processed material from the illumination source should be tested.

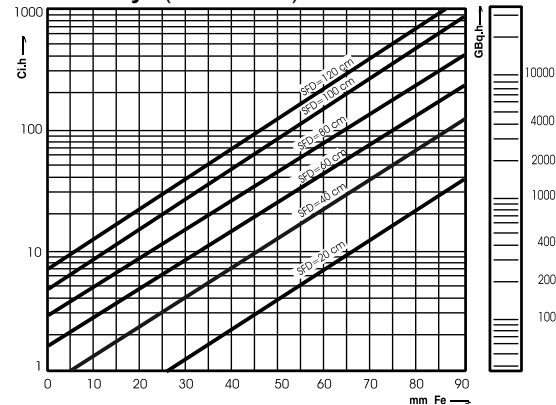
### Exposure charts for steel

For optical density D=2, front and back lead screens 0,025 mm thick, FOMADUX LP-T Developer 5 minutes at 20 °C).

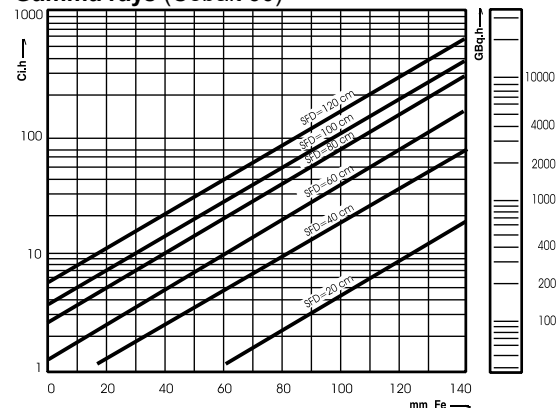
#### X-rays (FFD = 100 cm)



#### Gamma rays (Iridium 192)



#### Gamma rays (Cobalt 60)



## Processing

INDUX R3 is intended both for the manual and automatic processing.

### Recommended chemicals for the manual processing:

FOMADUX LP-T Developer and Developer-Replenisher  
(5 minutes of developing time at 20 °C, 1 + 3)  
FOMADUX FIX Rapid Fixer  
FOTONAL Wetting Agent

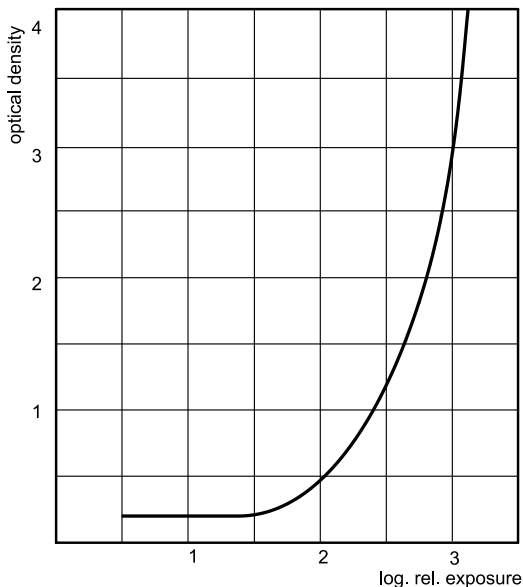
### Recommended chemicals for the automatic processing:

FOMADUX LP-D Developer-Replenisher  
(120 seconds of developer immersion time at 28 °C)  
FOMA LP-DS Developer Starter  
FOMADUX FIX-Set Hardening Fixer – part A (fixer) + part B (hardener)

INDUX R3 can also be processed in corresponding processing chemicals of other manufacturers, for example developer Agfa G135 for automatic processing 100 seconds of developer immersion time at 28 °C or for manual processing 5 minutes of developing time at 20 °C.

### Sensitometric characteristic

220 kV/10 mA/8 mm Cu, automatic processing, FOMADUX LP-D Developer, 8 minutes of processing time at 28 °C (corresponds with 120 seconds developer immersion time)



### Archiving of processed films

The manufacturer guarantees the archival permanence of minimum 50 years when complying with conditions following:

- films must be perfectly fixed and washed
- films must be stored at a relative humidity of 30 to 60% out of reach of harmful gases.

### Storage of unexposed films

Unexposed films should be stored in the vertical position in the original packaging in a dry and cool place at a temperature of 10 to 25 °C and at a relative humidity of 40 to 60 %, out of reach of harmful gases and any ionizing radiation.

After opening the film bag, you must re-close it with two folds to secure it against opening. This prevents air moisture from entering the film bag.

Exposed films should be processed as soon as possible.

*By using and processing of the product Indux R3 arise wastes, which is necessary to environmentally liquidate according to valid legislation.*

### Wastes:

- packaging foil : PET / AL / PE or PAPER / AL / PE
- Pb foil
- waste developers
- waste fixers

Information according to Article 33 of REACH: The product INDUX contains lead. This substance is included in the list of substances (for possible inclusion in Annex XIV). After handling, hygiene rules must be followed. More information at [www.foma.cz](http://www.foma.cz)

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The product has been produced and marketed in conformity with a quality system according to the international standard ISO 9001.