FUJIFILM

●INSTRUCTION MANUAL●

# PRESSURE MEASUREMENT FILM
# PRESCALE

**HIGH PRESSURE**
**HS**
**(MONO-SHEET TYPE)**

## ❶ LINE UP

Nine types of Prescale are supplied according to Eight pressure level. Select the appropriate Prescale range.

| type | Film type | Pressure range[MPa] 1MPa≒10.2kgf/cm² / Pressure range[psi] 1psi≒6895Pa |
|---|---|---|
| Two-sheet type | Ultra Extreme Low Pressure (5LW)<br>Extreme Low Pressure (4LW)<br>Ultra Super Low Pressure (LLLW)<br>Super Low Pressure (LLW)<br>Low Pressure (LW)<br>Medium Pressure (MW) | |
| Mono-sheet type | Medium Pressure (MS)<br>High Pressure (HS)<br>Super High Pressure (HHS) | |

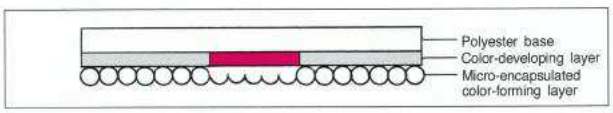
MPa: 0.006 0.05 0.2 0.5 0.6 2.5 10 50 130 300
psi: 0.87 7.3 29 73 87 363 1450 7250 18850 43500

＊Film type W:Two-sheet
S :Mono-sheet

## ❷ STRUCTURE AND HOW IT WORKS

### Structure

There are two types of Prescale; Two-sheet type and Mono-sheet type.
Mono-sheet type is composed of polyester base on which the color-developing material is coated, with the micro-encapsulated color forming material layered on top.




### How it works

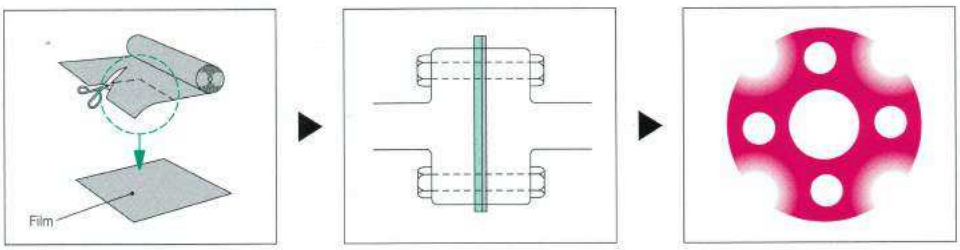
When pressure is applied, the microcapsules are broken and the color-forming material reacts with the color-developing material to make red color. The microcapusules are designed to break according to the pressure so the color density corresponds to the pressure.

## ❸ PROPERTIES

| | |
|---|---|
| Precision | ±10% or less (measured by densitometer at 23°C/73.4°F, 65% RH) |
| Recommended temperature range | 20°C～35°C(68°F～95°F) |
| Recommended humidity range | 35%RH～80%RH |

## ❹ HOW TO USE

**MONO-sheet type** (Medium & High & Super High pressure: MS & HS HHS)
Cut Prescale in a black poly sack appropriately. Insert the Prescale where you want to measure pressure. Apply pressure. Red patches appear on the films and the color density changes according to pressure level. Take out the film and check the pressure distribution.




(1)Cut the Prescale Film into the required shape.

(2)Insert cut Prescale Film into area to be measured and apply pressure.

(3)Remove film and observe pressure distribution.

## ❺ PACKAGING AND FILM

〈Package〉
Mono-sheet type is Composed of one roll. Film is in black poly sack and coated side is inside. A water/oil proof-sheet(PET film) is contained inside of the core roll of film. Please use this protection sheet when you use Prescale in wetty and oily circumstance.

〈Film Color〉
Film color is as follows.

| Mono-sheet type | film | Protection sheet |
|---|---|---|
| Medium Pressure(MS) | A little reddish | Colorless & transparent |
| High Pressure(HS) | Whity | Colorless & transparent |
| Super High Pressure(HHS) | 〃 | 〃 |

## ❻ STANDARD CONDITIONS FOR APPLYING PRESSURE

〈Continuous Pressure〉
Gradually increase the pressure to the required level in two minutes and maintain the pressure for another two minutes. The pressure maintained at this level is referred to as continuous pressure.

〈Momentary Pressure〉
Apply pressure for five seconds and mantain the pressure for another five seconds. The pressure maintained at this level is referred to as momentary pressure.

## ❼ HOW TO DETERMINE THE PRESSURE LEVEL

**Pressure distribution check by Prescale alone**
When pressure is applied, red patches appear on Prescale. The red color density of Prescale changes depending on the amount of pressure applied. The area with deep red color indicates that the pressure applied was high and conversely the area with light red color indicates that the pressure applied was low. Place the Prescale on a few white sheets of paper with its smooth surface on top and check the result in the light.

**Pressure values determination by using the pressure chart**
In order to roughly determine the pressure values, use the Prescale standard color sample and the pressure chart. Taking the temperature, the humidity and the pressure condition into consideration, you can determine the pressure values to a certain extent by selecting a pressure curve from the standard pressure chart. Place the Prescale on a few white sheets of paper with its smooth surface on top and check the result in the light.

## PRECAUTIONS ON USE

1) Contact with the micro-encapsulated color-forming layer of film for long periods may cause a skin reaction in sensitive individuals. To wear protective gloves is recommended during handling.
2) Mono-sheet type is self-color-developing, so be careful to handle it.
3) Clean the measuring place beforehand. Water, oil dust if present on the surface of Prescale, will hinder proper color density development.
4) Use the Prescale at temperature 20°C~35°C(68°F~95°F) and humidity 35%RH~80%RH. The result of measurement may not be accurate outside of this region.
5) Prescale is not reusable.
6) Use Prescale within the given shelf life.

## PRECAUTIONS ON STORAGE

1) Be careful not to apply pressure on Prescale so that color patches won't appear on it.
2) Keep Prescale under cool (below 15°C)and dark room avoid direct sunlight and heat.
3) Don't contact Prescale with the following items:
   Diazo copying papers and carbon papers
   Water, oil, solvent and other chemicals
   Vinyl products and adhesive tapes
   Rubber products
   Papers written by marker pens
4) Keep unused Prescale in the black poly sack and store it in a box.
5) Avoid exposing C-film to the light for extended periods of time.
6) Avoid having rough surfaces of used Prescale face each other.

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**MADE IN JAPAN by FUJIFILM Corporation**

**HIGH PRESSURE**

# H S

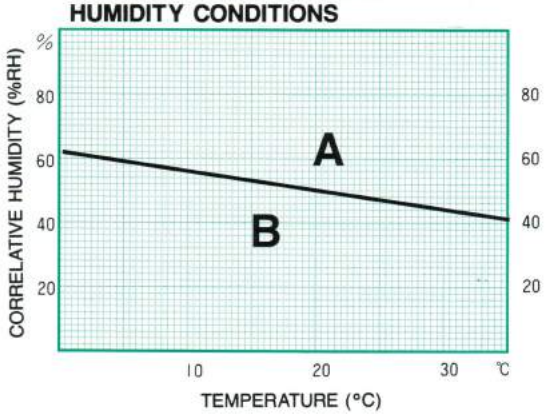
**(MONO-SHEET TYPE)**

# STANDARD CONTINUOUS PRESSURE CHART

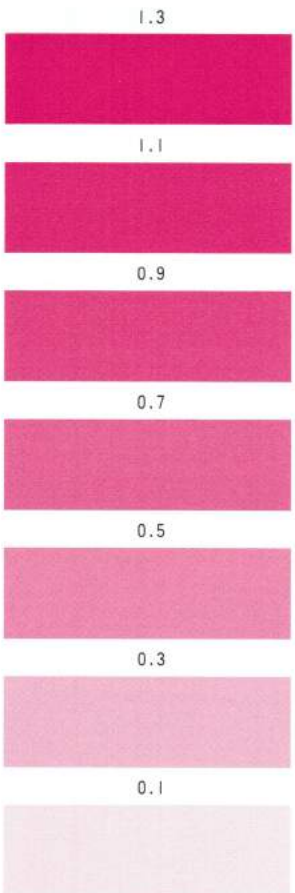
Measurement pressure range: 50–130MPa
- Pressure application conditions
  Time to reach the pressure to be measured: 2 min.
  Time of retention at the pressure to be measured: 2 min.

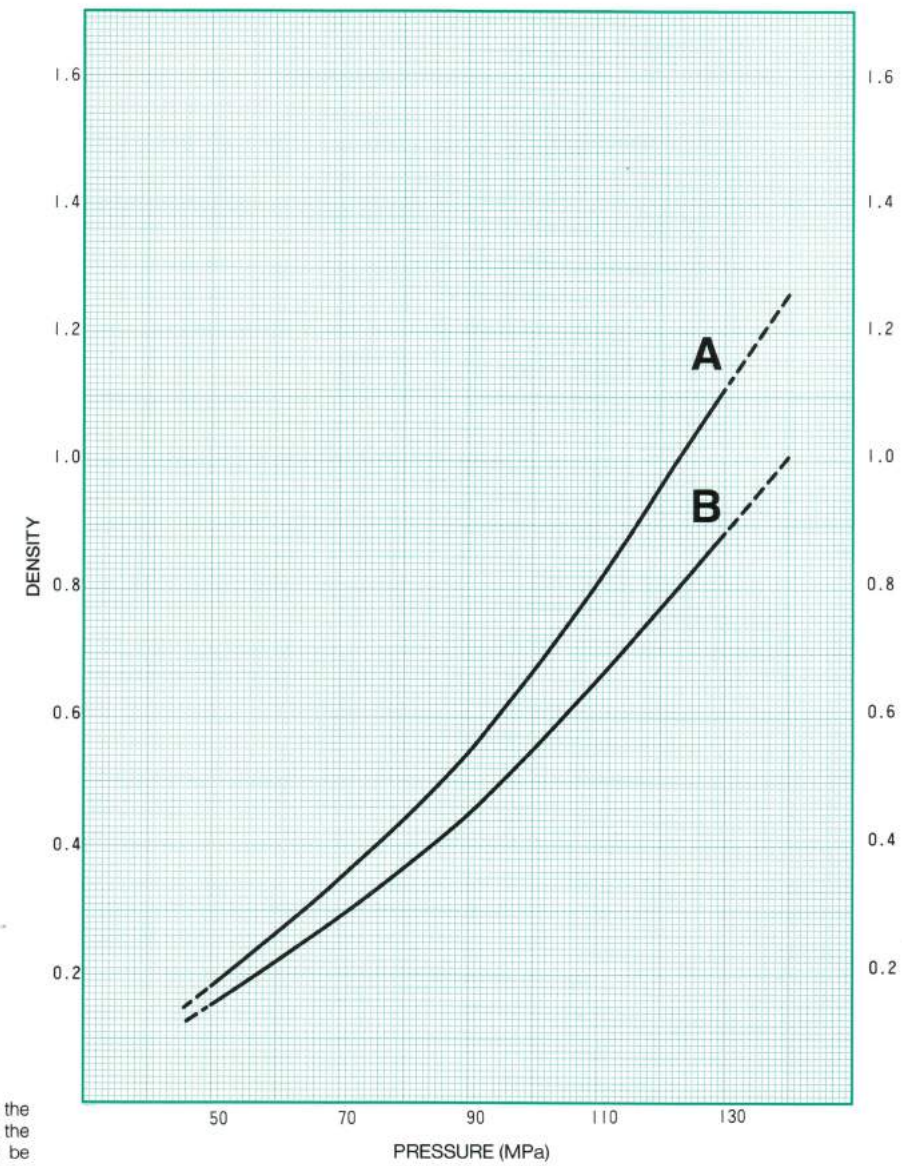
Check if the temperature and humidity meet with the conditions above when the pressure is applied.
(For example, if the room temperature is 25°C and the humidity factor is 60%RH, acquire the pressure from the A curve in the standard chart.)

**GRAPH OF TEMPERATURE/ HUMIDITY CONDITIONS**




**STANDARD COLOR SAMPLE**



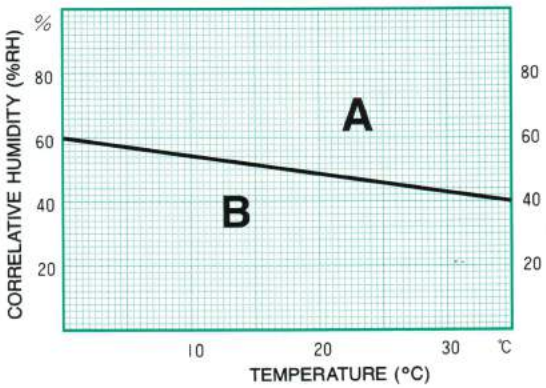

As the pressure range indicated by the broken line in the graph may exceed the permissible error range, it should be used for reference purposes only.

# STANDARD MOMENTARY PRESSURE CHART

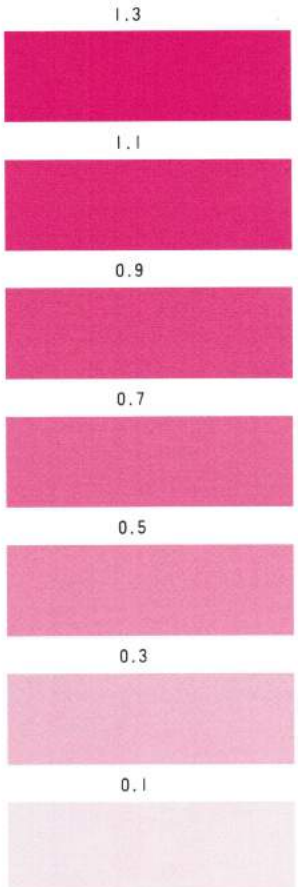
Measurement pressure range: 50–130MPa
- Pressure application conditions
  Time to reach the pressure to be measured: 5 sec.
  Time of retention at the pressure to be measured: 5 sec.

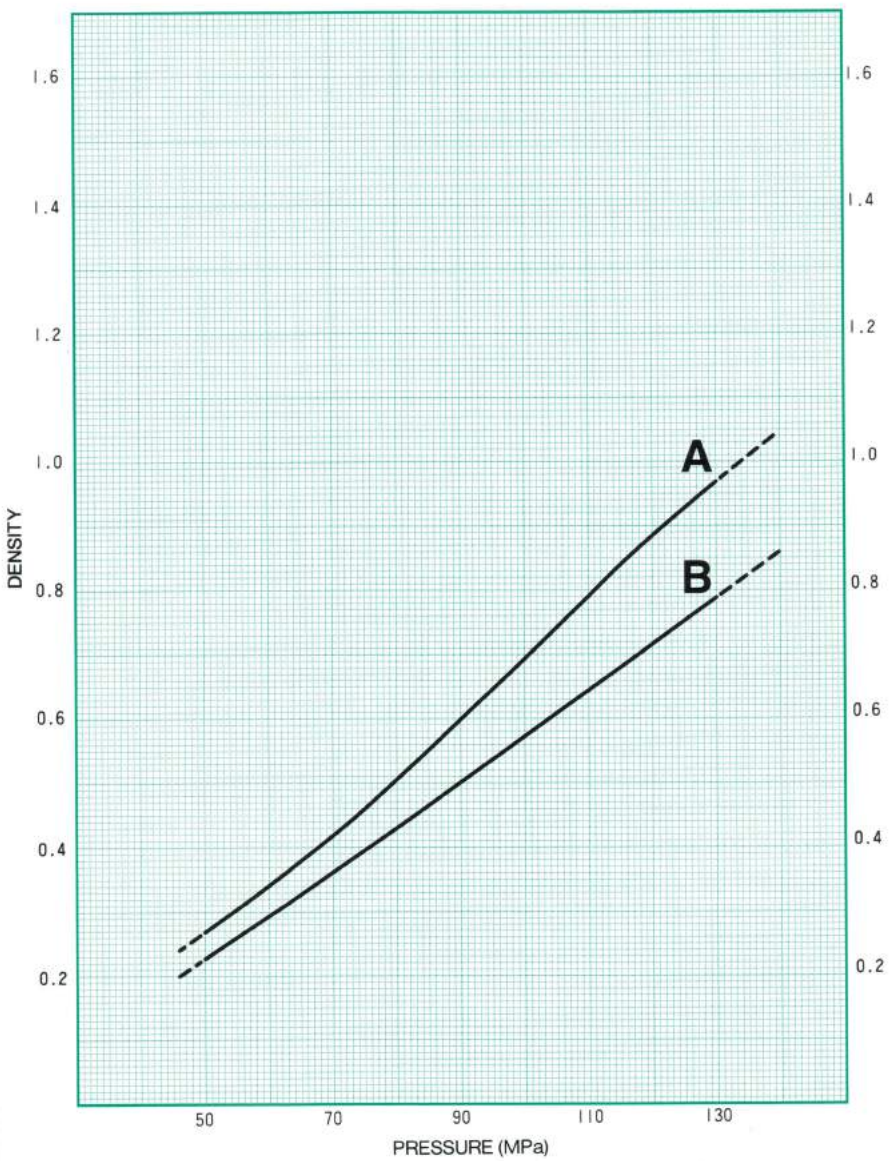
Check if the temperature and humidity meet with the conditions above when the pressure is applied.
(For example, if the room temperature is 25°C and the humidity factor is 60%RH, acquire the pressure from the A curve in the standard chart.)

**GRAPH OF TEMPERATURE/ HUMIDITY CONDITIONS**




**STANDARD COLOR SAMPLE**

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