

# DNP

Global Leader in  
Thermal Transfer Ribbons

**Durable  
print solutions  
for healthcare**





Throat Lozenges

1100

0

25

Each capsule contains  
400 mg gabapentin  
Elke kapsule bevat  
400 mg gabapentin

gabapentin  
gabapentin  
gabapentin

## Introduction

Falsified medicines, which are not intended to be sold in the EU, could pose a risk to your health and should be kept off the market. Therefore, a new anti-falsification regulation, also more popularly known as serialization, is legally required in Europe since February 2019 under number EU2016/161, directive 2001/83/EC.

According to studies by the WHO, the worldwide counterfeiting rate among prescription drugs sold through suspicious websites is nearly 50%. To counter these risks, stringent regulations are required globally. In Europe, prescribed drugs have to be provided with a unique code number, which will prove that the packaging of the drug is authentic and will ensure that the drugs can be tracked and traced from manufacturing to dispensing.

In that sense, serialization is a good method to put an end to the global trade in illegal drugs and at the same time increases patient safety. Serialization raises questions from the healthcare industry and requires solutions from the printing industry.

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## What can we do for you?

DNP can help you to ensure patient safety and to fight product piracy; with a wide range of thermal transfer ribbons to print on various substrates, your product will be readable from the first to the last part of its journey to create a healthier world.

We recommend using certified label substrates and adhesives in combination with a printing ribbon suitable for the application and compatible with the label substrate. DNP is collaborating with many label manufacturers, such as Avery Dennison, UPM Raflatac, Lintec and Flexcon. We can test your label application in our laboratory and give you our advice about the best print solution.

DNP supplies thermal transfer inks to print variable information mandatory for serialization. Suitable for many different types of regulations and compliances regarding printing, most DNP ribbons comply with industry certifications such as REACH, ROHS, ISEGA and FDA.



# Durable print solutions

## Serialization

Pharmaceutical serialization is the tracking and tracing of prescription drugs through the supply chain from manufacturing to dispensing.

In Europe, serialization is legally required since February 2019 (EU 2016/161, Directive 2001/83/EC) and is aimed to counter falsified medicines (Falsified Medicines Directive). As medicines are serialized, all chains between manufacturing and dispensing need to comply with this directive.

The basic requirements to counter falsified medicines involve the following printable information on the packaging of the medicines:

- Unique serial number
- Product item number (GTIN Global Trade Item Number, NTIN National Trade Item Number or PPN Pharmacy Product Number)
- Lot number
- Expiry date



All of the above should be encrypted in both a 2D data matrix and as human readable information.

DNP TTR ribbon solutions			
Substrate types	Wax ribbons Standard durability	Wax/Resin ribbons Premium durability	Resin ribbons Excellent durability
Paper labels	MP Wax   TR4085plus®	TR4500*   TR5080   TR6080	V300   R316   R396*
Smooth paper labels	TR4085plus®	TR4500*   TR5080 TR6080   M265   M255	V300   R316   R395   R396*
Filmic labels	-	M265   M295HD*	V300   TR4070   R390*   R396* R510 <sup>(HF)</sup>   R550   R300   TR7541*
Print-on-Packaging Plastics	-	M295HD*	R390*   R396*   R600*

\*Near Edge printing solutions

With the evermore stringent legal requirements, pharmaceutical companies need to consider the following important factors when integrating variable printing solutions:

**• Is the packaging surface printable for variable information?**

A rougher surface requires a different form of thermal transfer ink than a smooth surface.

**• What is the expected lifecycle of your packaging material and its content?**

The longer your product is kept on stock, the more resistant and readable the printed information needs to remain, so this might require a different type of thermal transfer ink.

**• Will the packaging be exposed to smudging and scratching?**

In order to preserve the readability of the printed information, the print needs to be resistant to smudging and scratching. This requires thermal transfer inks that safeguard the readability.

**• Will the packaging be exposed to extremes, such as solvents, direct sunlight or extreme temperatures?**

If so, more durable types of thermal transfer inks are required to fit such requirements.

# Durable print solutions

## Laboratory

Using the right type of ink for your laboratory labels is critical for the success of getting the correct information to the next person.

- Using hand-written texts on laboratory labels is cumbersome and mistakes are easily made. Printing variable information enhances reliability and readability of information onto the next step of the process.
- If the label material and the printing ink do not bond, the ink could wipe off during a solvent treatment, exposure to extreme temperatures or cleaning processes. Choosing the right DNP resin ribbon ensures proper resistance.
- While most applications don't require readability for more than a few weeks, some may be stored for twenty years. Using the correct label, adhesive and printing ribbon will guarantee your requirements.



There are many different types of applications possible within medical laboratories. Ranging from hazardous solvents to extreme temperature resistance, DNP offers printing solutions to preserve the best possible print quality on your label materials.

Typical laboratory labels are small, but the printed content is critical and should remain readable until the label is no longer required. Small labels require small barcodes or printed text. This requires a high resolution print. With smaller sized labels, the readability of critical information becomes more important than ever in healthcare, DNP provides clearly readable and resistant printing inks to support laboratory efficiency and convenience.

For a printed barcode, text or symbol, DNP should be your thermal transfer printing brand of choice in laboratories. With distinctive and highly regarded products, such as M265 for smudge and scratch resistance, R300 for general solvent resistance, R510<sup>(HF)</sup> and R550 for extreme chemical resistance, DNP offers reliable products for your printing requirements.

DNP TTR ribbon solutions			
Laboratory print solutions Printable substrates Paper, Polyolefins (PE and PP), PET	Wax ribbons Standard durability	Wax/Resin ribbons Premium durability	Resin ribbons Excellent durability
Standard identification labels	MP Wax   TR4085 <sup>®</sup>	TR4500*   TR5080   M265   M255   TR6080   M295HD*	V300   R390*   R396*   R395   R316   R550   R300   TR7541
Cryogenic applications (-196°C)	-	-	R510 <sup>(HF)</sup>   R550
Chemical resistance Isopropanol	-	-	V300   R300   R510 <sup>(HF)</sup>   R550   R390*   R396*
Chemical resistance Xylene	-	-	R550   TR7541

\*Near Edge printing solutions

# Durable print solutions

## Blood bags

Blood plays a vital part in our daily lives, but also in today’s healthcare industry.

To identify each blood bag, ISBT 128 standard barcodes are used from collecting and distribution to transfusion. Durable and high quality identification printing of each label on each bag is essential to ensure readability and scanability throughout the entire supply chain. DNP offers a wide range of thermal transfer ribbon solutions that prints on most commonly used label substrates. These substrates must withstand a number of treatments varying from high humidity, very low to high temperatures for cryogenic and sterilization processes, but also resistance to chemicals and cleaning agents are often required.

DNP has many years of expertise in the field of resin inks, mainly intended for printing on smooth and often difficult surfaces. Withstanding a high variety of hazardous solvents and extreme temperatures, DNP provides products for high-end applications to support your business process.

Here is where DNP’s widely recognized product development experience comes into play.

For primary labels, when you need specific chemical resistance, our R510<sup>(HF)</sup> and R550 will offer you the solution you need.

The secondary label, which is placed over the primary blood bag label, should be printed with clearly readable and durable ink.

With our standard resin product R300, you will have durable scratch and moist resistant print results.



DNP TTR ribbon solutions		
Bloodbag compliant (**) label solution Printable substrates PET, PP, PE	Wax/Resin ribbons Premium durability	Resin ribbons Excellent durability
Primary labels	-	R510 <sup>(HF)</sup>   R550
Secondary labels	-	V300   R300   R390*   R510 <sup>(HF)</sup>   TR4070
Distribution labels	M265	V300   R300   R390*   TR4070
Sterilization labels	-	V300   R510 <sup>(HF)</sup>   R550   TR4070
** Adhesives compliant to FDA175.105, ISO 10933-5 and ISO 3826 Avery Dennison AL171, C2020P, S2060NP, Raflatac RPMD, RP32 PB		

\*Near Edge printing solutions

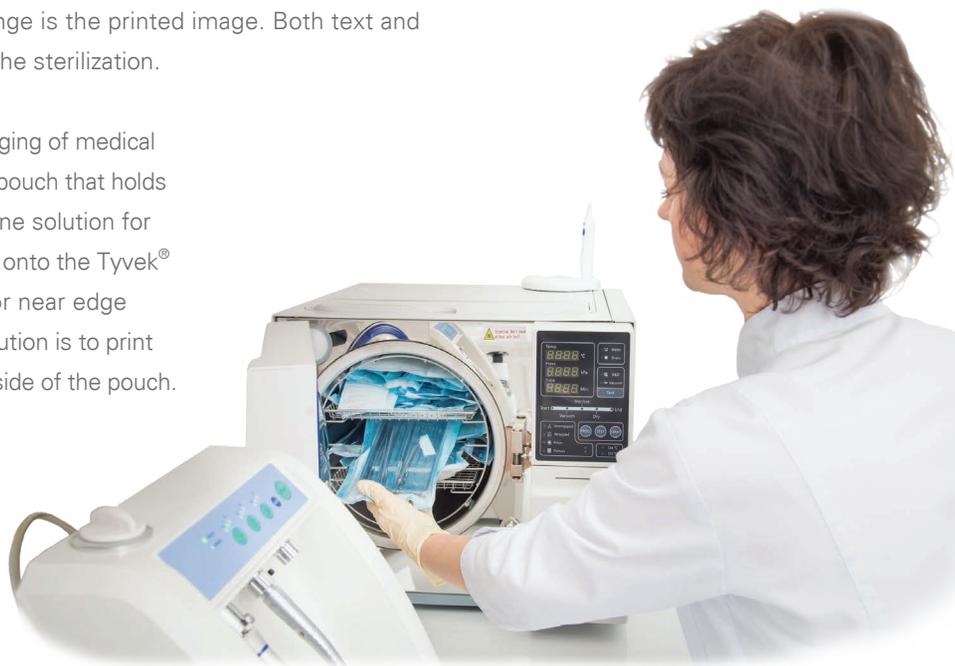
# Durable print solutions

## Sterilization

Besides gamma radiation and ethylene oxide; autoclave is the most commonly used method of sterilization. Medical instruments are cleaned thoroughly with hot steam to remove any contamination such as bacteria, fungi and viruses. As instruments are often labelled, this label and print must withstand multiple passes in an autoclave during its useful life, ranging from several days to many years.

The biggest challenge is the label adhesive, which needs to remain glued under these tough conditions. The second biggest challenge is the printed image. Both text and barcode must be legible and scannable after the sterilization.

There are several materials in use for the packaging of medical instruments. Often they are stored in a Tyvek® pouch that holds the instrument during and after sterilization. One solution for tracking the sterilization date is to print directly onto the Tyvek® material using our TR4500 ribbon, suitable for near edge printing in direct printing modules. Another solution is to print on a small label, which can be stuck on the outside of the pouch.



DNP TTR ribbon solutions		
Sterilization print solutions Printable substrates PET, PP, PE	Wax/Resin ribbons Premium durability	Resin ribbons Excellent durability
<b>Autoclave cycles printed pouch</b> (132°C and 30 psi pressure)	TR4500*	R316   R396*   R395*
<b>Autoclave cycles printed label</b> (132°C and 30 psi pressure)	M265	V300   R300   R390*   R396*   R316   R510 <sup>(HF)</sup> R550   TR4070
<b>Dry-heat sterilization</b> (up to 150°C)	M265	R300   R316   R390*   R396*
<b>Ethylene oxide gas treatment</b> (60 minutes at 55°C and 40-80% relative humidity)	M265	R300   R316   R390*   R396*   R510 <sup>(HF)</sup>   R550 R600*   TR7541*

\*Near Edge printing solutions

# Durable print solutions

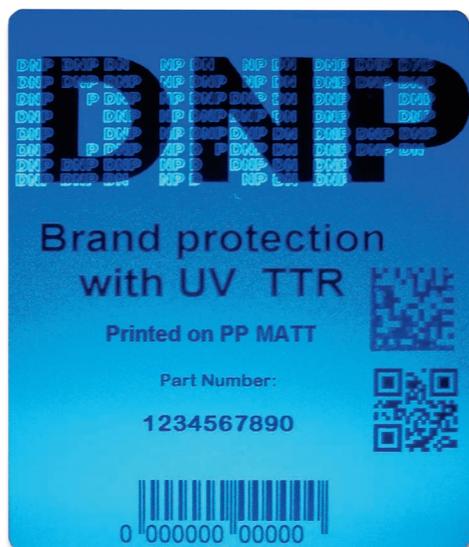
## Brand protection

Next to serialisation, you can choose other solutions to protect your brand and fight counterfeiting. DNP has visible and invisible solutions that help to protect your brand and prevent loss of revenue due to counterfeit.

With our holographic ribbon solutions you are able to print predefined or custom patterns that immediately help protect your brand. Custom patterns can be created and changed periodically to stay ahead of the counterfeiters.

Another solution is invisible to the naked eye. DNP's special UV ribbons will enable you to print variable information on the packaging with added UV pigments that light up under a UV lamp, making it easy to identify genuine products.

These ribbons can be printed in any thermal transfer printer using moderate to high print heat settings. To obtain optimal print quality, it is recommended to use filmic label materials. Let us test your label material to suit your application, we can customize your security solution to help you protect your brand.



DNP Imagingcomm Europe B.V. is a subsidiary of Dai Nippon Printing Co., Ltd. DNP's TTR division has grown to be the world's largest manufacturer of thermal transfer ribbons for barcode and dye-sublimation printers. At DNP, we don't make thermal transfer ribbons, we craft it – with dedication, experience, the finest materials and stringent quality control. It's in our DNA.

At the most fundamental level, new creations and technology drive the concept of DNP as a Print & Information Solutions provider. Collaborating with expert teams, our R&D departments form the force that brings innovation to realization. We have in-house research and development to print and test various label and printer combinations. DNP can always assist you to determine the best print solution for your application.

For more information: [eu.dnpribbons.com](http://eu.dnpribbons.com)

### DNP: committed to sustainable growth

DNP is actively working to preserve the environment. Corporately, we strive to achieve zero emissions, reduce water usage, protect biodiversity, thoroughly control the use of chemicals, develop eco-friendly products, and pursue green purchasing.

### DNP Imagingcomm Europe B.V.

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