

**NAZDAR**  
INK TECHNOLOGIES

**OEM**  
GROUP

INKJET FLUIDS  
CAPABILITIES & SERVICES

## A Legacy of Trusted Partnership

Since 1922, Nazdar has been serving the printing industry by providing high quality products, expert technical knowledge, and unparalleled customer service. Nazdar has over thirty years experience developing fluids for inkjet OEMs and printhead partners.

Our experience in non-compete and non-disclosure relationships means you can be confident that all proprietary information will be handled carefully.

Support

Nazdar

A photograph of a modern, multi-story office building with large glass windows and a concrete facade. In the foreground, a concrete sign with the word "NAZDAR" in bold, black letters is visible. The sign has a red "Z" in the word. The building is set on a green lawn under a clear blue sky. An American flag is visible on a tall pole in front of the building.

NAZDAR



**Richard Bowles**  
**President & CEO of Nazdar**

During his time as president and CEO, Richard has played a major role in the growth of the business, with his solid and exemplary leadership helping Nazdar to maintain its market-leading position,

Bowles has been with Nazdar for more than 19 years, having joined the business in December 2002 as VP of marketing. In total, he brings more than 36 years of experience.



**James MacDonald**  
**VP OEM Business at NIT**

James brings 19 years of experience at Nazdar. Both as the VP of Sales and Product Marketing and the Director of Marketing.



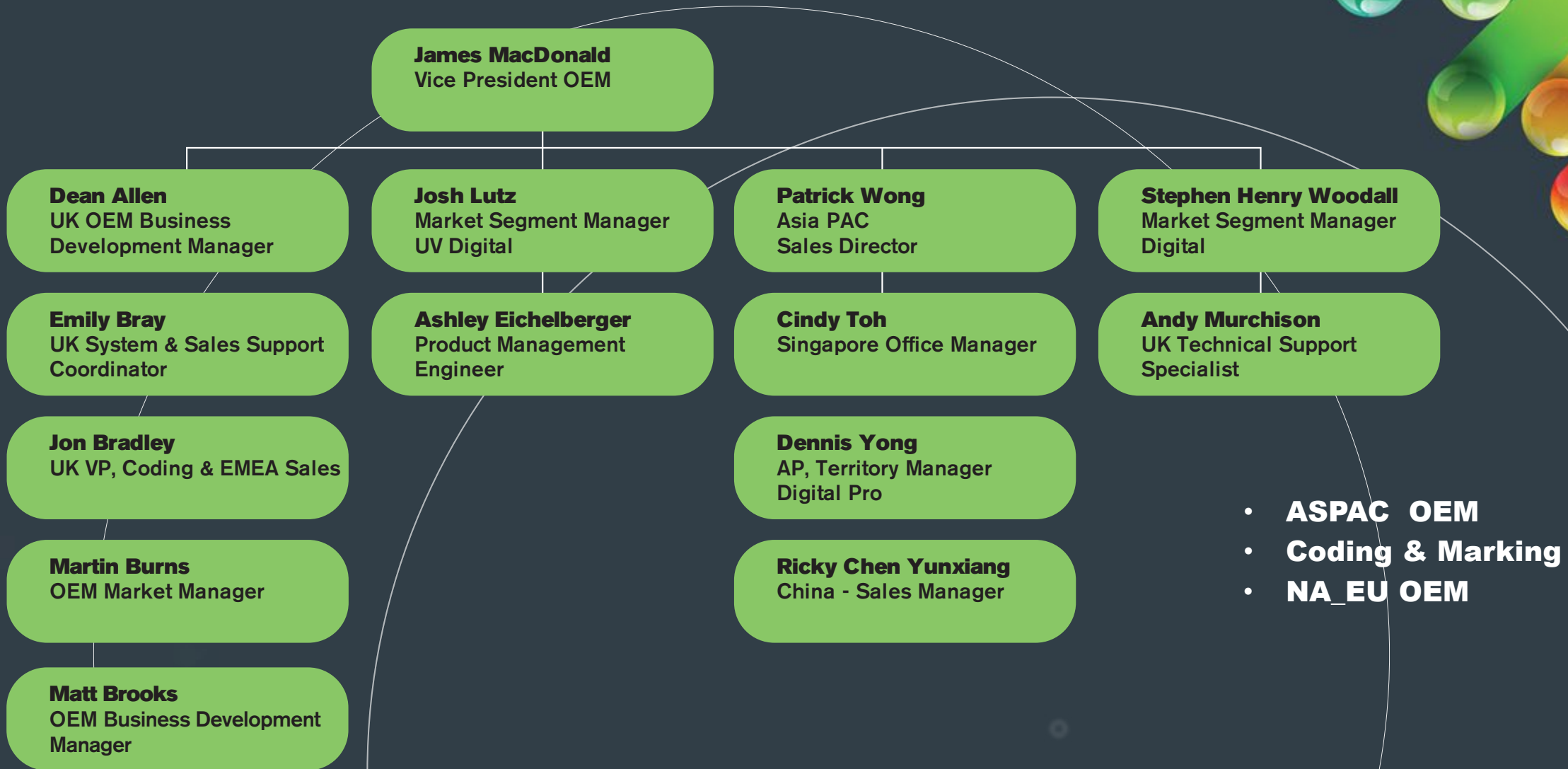
**Martin Burns**  
**OEM Business Development  
Manager**

Martin has over 20 years of experience at Nazdar. Nazdar credits him as integral to “managing the entire product line from conceptual stages through product life cycles while working closely with research and development, manufacturing and sales departments.” Burns previously served as digital market sector manager for the organization’s EMEA and ASPAC regions, where he was responsible for the global management of wide and super-wide solvent and aqueous products.



**Dean Allen**  
**OEM Business  
Development Manager**

**Dean, from** Canterbury, England has experience in Commercial management, International Marketing & business development, contract negotiation, team building, leadership, customer focus, technical aptitude. Dean’s wide array of experience in the industry is paramount in customer relation.



- **ASPAC OEM**
- **Coding & Marking**
- **NA\_EU OEM**

## Research & Development U.S. & U.K.

### Innovative Ideas, Put To The Test

As technology rapidly changes the way we communicate in print, the graphics imaging industry becomes increasingly more competitive. Our customers demand more from us than higher performance ink and chemical products to stay competitive - they want us to be an innovative partner in their production process.

Nazdar's product development begins long before we go into the lab. It begins with the customer.

Today, our award-winning R&D professionals in the US and Europe are working on developing innovative inks and chemical solutions that deliver the performance that our customers need to stay competitive.



## Quality Manufacturing

### Delivering Consistently Excellent Results

At Nazdar's 120,000 square foot manufacturing plant in Shawnee, Kansas, and in our additional United Kingdom manufacturing plant, we develop and produce Nazdar's award-winning inks. All are manufactured to the highest quality standards and designed to help our customers increase productivity and performance.

Since 2000, Nazdar's Quality Management System had been independently certified and registered as meeting the requirements of the International Quality Standard, ISO 9001. This was, and is, an unmistakable signal to our customers that Nazdar has achieved a standard of quality recognized and respected throughout the world.



## Promoting Sustainability

Reducing Our Environmental Footprint Through Sustainable Practices

### Nazdar Awarded 2024 EcoVadis Silver Award for Sustainability Efforts



#### Nazdar's Continuous Approach to Sustainability

- Commitment
- Assess
- Define
- Implement
- Measure
- Communicate

#### Initial Scope & Boundaries

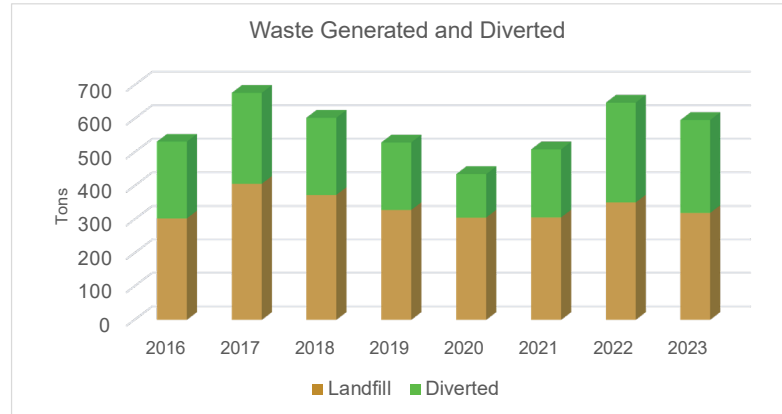
- Initially most impact within our company boundaries
- Secondly work with our business and supply chain partners

#### Our Focus

- Safety
- Environmental Sustainability
- Health and Wellness
- Diversity, Equity & Inclusion
- Environmental Sustainability
- Health and Wellness
- Diversity, Equity & Inclusion

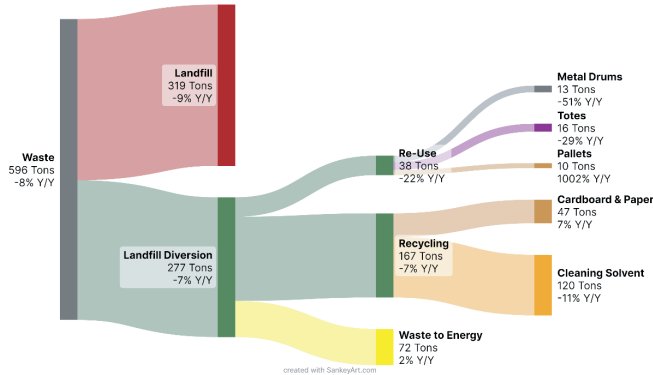


**Landfill Diversion**

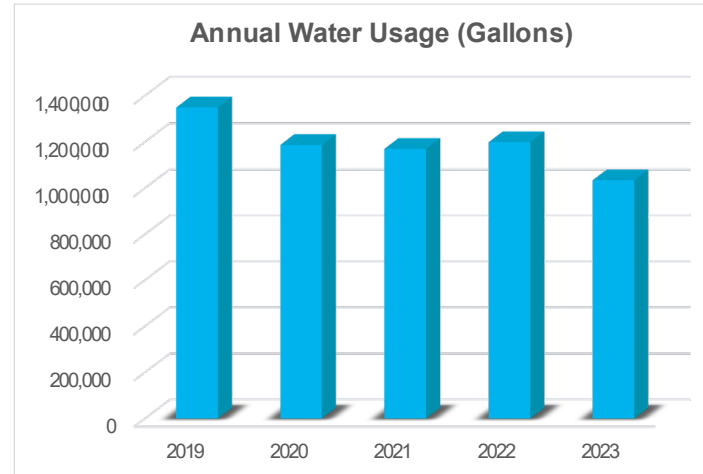


Nazdar has an extensive historical landfill diversion program that embraces the three R's (Reduce, Reuse, Recycle) and waste to energy, when appropriate. Supply chain materials that are diverted from landfills include metal drums, totes, wooden pallets, and paper/cardboard. Hazardous chemical waste from our operations is incinerated in cement kilns or heat and solvent from our cleaning processes is captured in a solvent still and reused. New targets for diversion are identified during waste stream mapping exercises. The Sankey diagram below demonstrates the breakdown of our waste streams for FY 2023.

**Waste Stream Map**

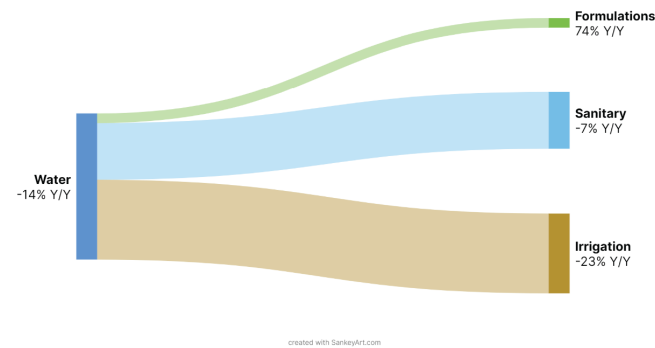


**Water Consumption**



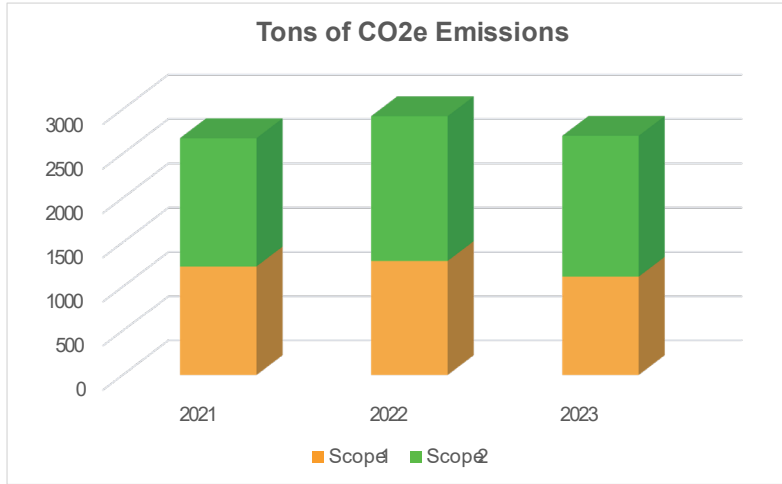
Nazdar's consumption of water has decreased over the last 5 years from a variety of building and manufacturing improvements, and updating of our irrigation systems (FY2022) resulting in significant decrease in our consumption for FY2023. Nazdar has experienced significant growth of our water-based portfolio which makes these improvements even more impressive. See a breakdown of our water usage for FY2023 in the Sankey diagram below.

**Water Usage Map**

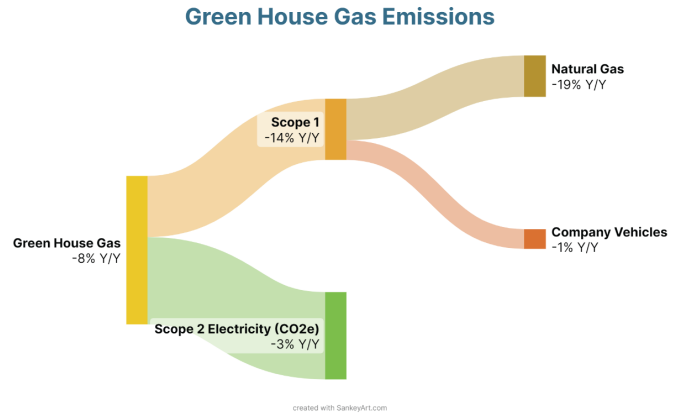




**Energy and Emissions**



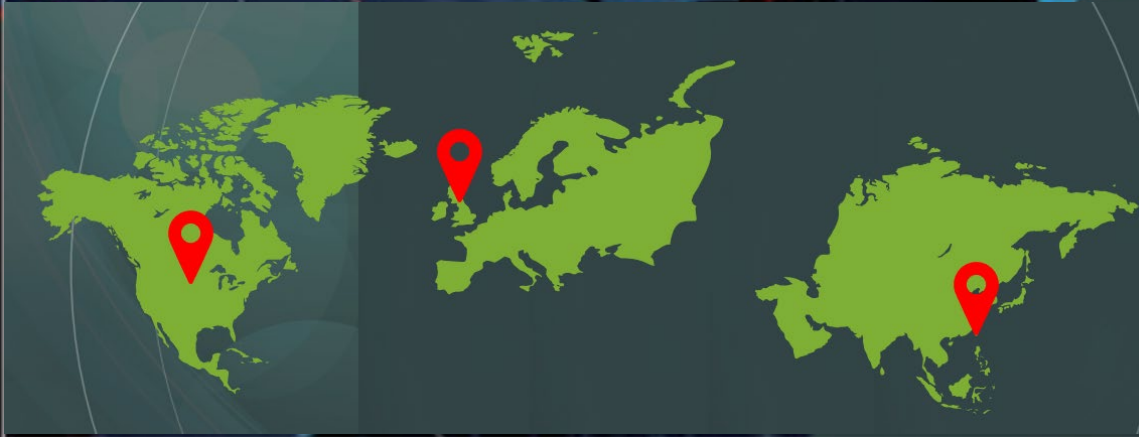
Nazdar has established its baseline for energy usage and greenhouse gas emissions (scope 1 and 2) in FY2021. Nazdar has invested significant building improvements such as LED lighting (with sensors), programmable thermostats, and a solar reflective roof to minimize our energy usage. A breakdown of our greenhouse gas emissions can be found in the Sankey diagram below for FY2023.



## Global Reach

With two manufacturing facilities and multiple distribution centers across the globe, Nazdar will deliver your product where and when you need it.

Our state-of-the-art production facilities will meet all your inventory, labeling and regulatory requirements. We can deliver customized containers and packaging to optimize branding for your product and convenience for your customers.



Manufacture

Branding

## Capabilities

Applications:



**OEM  
Private Label  
Business Model**



**Clear Functional Fluids**



**Packaging & Labelling**



**Multi-pass Graphics Fluids**



**Textile**



**Commercial Print**



**Decor**



**Water-Based Packaging**



**3D Printing**



**Inkjet Fluid Technology**



## Selecting The Right Fluid

### Step 1: Application

Understanding the application and substrate(s) is an integral part of the selection process. It's also important to identify any pre-treatments that may be used.

### Step 2: Printhead

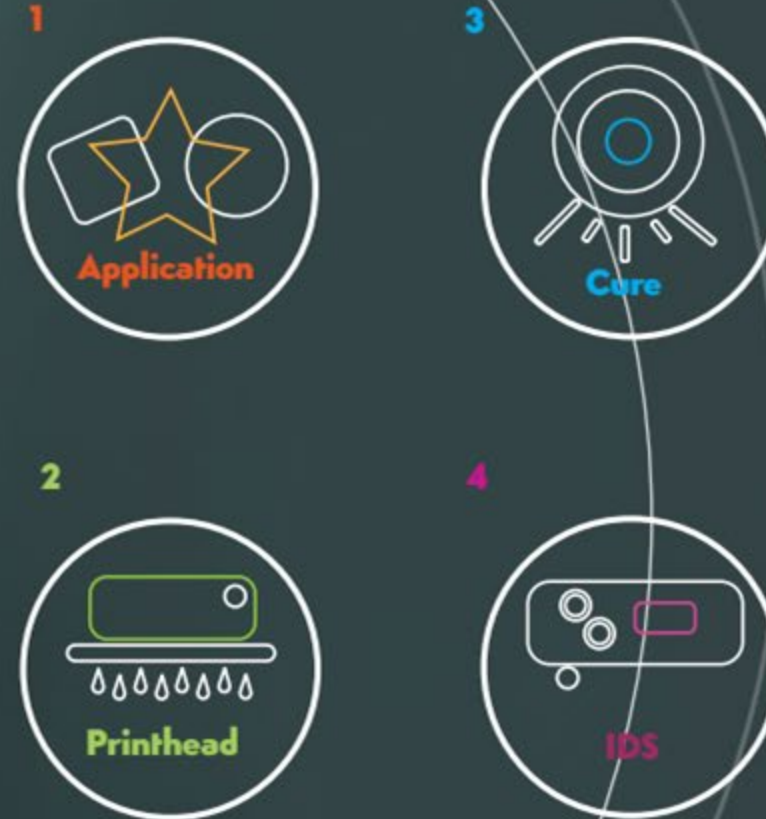
The printhead is key to the overall press layout and is the driver for both speed and quality. Ensuring the fluid has the correct viscosity window for your printhead enhances drop placement and reduces satellites during jetting.

### Step 3: Cure

Fluids are each designed for a specific curing system, which each offer a variety of different features. Understanding each system's performance characteristics enables smooth integration and reliability once your press is in production.

### Step 4: Ink Delivery System (IDS)

Ink Delivery Systems are a key component in creating a production-ready digital solution. Understanding the chemical restrictions within a system is a key first step in making a fluid selection.



## CLEAR FUNCTIONAL FLUIDS

Clear Functional Fluids		MULTI-FUNCTIONAL CLEAR COATINGS			
SERIES		140	240HDC	240SC	240CC
Spec	Viscosity @ 45C (cP)	10><13	10><13	10><13	10><13
	Surface Tension (Dyne/cm2)	22><24	21><24	34><36	34><36
Cure	UV (Hg)	YES	YES	YES	YES
	LED (395nm)	NO	YES	YES	YES
Speed (up-to)	Dependent on head type	75m/min	75m/min	75m/min	50m/min
Clarity Rating	Transparency of finished clear coat	3	2	1	3
Foiling	Cold	YES	YES	YES	YES
	Hot	YES	YES	YES	NO
Flooding	100% coverage at high film waits	3	3	2	2
Spot	Greyscale & detailing	1	1	3	2
EU Reach Compliant		YES	YES	YES	YES
Satellite Reduction Chemistry (SRC)		NO	YES	YES	YES
High Laydown Capability	* Only available with some printheads	NO	NO	YES*	YES*
EN71 Approved		YES	YES	YES	YES
Odor level		2	2	2	2
Low Migration	** Migration must be independently tested per application	YES**	YES**	YES*	YES**
Nestlé Compliant		NO	NO	NO	NO
Swiss Ordinance Compliant		NO	NO	NO	NO



## PACKAGING & LABELLING

Packaging & Labelling		PACKAGING & LABELLING			
		200	201	205	220
	<b>SERIES</b>				
Spec	Viscosity @ 45C (cP)	10><13	8><9	10><13	10><13
	Surface Tension (Dyne/cm2)	22><25	22><24	27><29	21><23
Cure	UV (Hg)	YES	YES	YES	YES
	LED (395nm)	YES	YES	YES	YES
Speed (up-to)	Dependent on printhead type	75m/min	75m/min	75m/min	50m/min
Colour		CMYK	CMYK+W	White	CMYK+W
EU Reach Compliant		YES	YES	YES	YES
Satellite Reduction Chemistry (SRC)		NO	YES	YES	YES
High Laydown Capability		NO	NO	NO	NO
Pack Size		5-liter,1-liter	5-liter,1-liter	5-liter,1-liter	5-liter,1-liter
Low Odour		YES	YES	YES	YES
Low Migration**	** Migration must be independently tested per application	YES**	YES**	YES**	YES**
Nestlé Compliant		NO	NO	NO	YES
Swiss Ordinance Compliant		NO	NO	YES	YES

Scale: 1 = moderate performance, 3 = optimal performance

**MULTI-PASS GRAPHICS FLUIDS**

**Multi-pass Graphics**

		MULTI-PASS UV GRAPHIC INKS				
		LVRHD Non-heated ink system	MVK	Graphic Heated ink system (45°C)	LOLED	LOMR LED
Spec	Viscosity @ 45C (cP)	6 - 8 @ 25C	6-8	10-13	10-13	10-13
	Surface Tension (Dyne/cm2)	34 - 37	21-23	22-24	27-30	22-26
Platform	Flatbed	-	2	1	2	3
	Hybrid	1	2	1	3	2
	Roll-to-Roll	3	3	3	2	1
Cure	UV (Hg)	YES	YES	YES	YES	YES
	LED (395nm)	YES	YES	YES	YES	YES
Odour		Low	Low	Medium	Low	Medium
Flexible Substrate		3	3	3	2	1
Rigid Substrate		1	2	1	2	3
Colour Strength		High	High	Medium	High	High

Scale: 1 = moderate performance, 3 = optimal performance

## TEXTILES

### Nazdar NTP

Nazdar's NTP inks are pigmented digital textile inks designed for printing directly to rolled fabrics for various applications, such as fashion and décor.

NTP's advanced chemistry formulation offers very low odor results, essential for indoor fabrics and clothing. It also exhibits excellent hand/feel, making it an ideal option for products in this demanding market.

### Textiles

Additional Products:

Cleaning Solution

Fabric Pre-treatment

Viscosity Range:

3-5cPs @25°C

6-7cPs @25°C

11 - 12 cPs @25°C



Soft Signage

Fashion

Décor



100% Cotton

Cotton Rich Blends

White Roll Cotton



Wash Fastness

Excellent wash fastness from Nazdar dispersion technology.

Best results are achieved on cottons coated with a receptive coating.



Standard Colour Range

## COMMERCIAL PRINT

### Nazdar NCP

Nazdar NCP inks are suitable for an array of applications including books, photographic images, promotional brochures/leaflets, direct-mail, book covers, calendars and artwork.

NCP's advanced dispersion chemistry enables the high-speed and high-volume printing essential in today's commercial print market.



Publishing  
Transaction Printing  
Direct Mail  
Packaging  
Photo Publishing



Uncoated Paper  
Coated Paper  
Card Stock  
Folding Box Board  
Corrugated Liner



Nazdar NCP advanced formulation and production techniques enable extremely high-density output while maintaining very high print speed.



Standard Colour Range

## DÉCOR

### Nazdar DEC

With consumer demand for custom graphics/wallpaper increasing dramatically, the flexibility to produce short-run and sample quantities is essential. This has led to greater adoption of digital inkjet within the wallpaper and wall coverings sectors.

Nazdar's NCW Series inks are ideally suited for these applications, offering a wide color-gamut to produce vibrant graphics. Just as essential, NCW features outstanding resistance and durability, along with great lightfastness, all of which keep the finished product looking good longer.

## Decor

Combination Printing  
Additional Products:  
Flexo Overcoats  
Flexo Inkjet Receptive Coatings  
UV Inkjet UV Inkjet Over Clear  
Cleaning Solution

Viscosity Range:

3-5cPs @25°C

6-7cPs @25°C



Digital Wallpaper Printing  
Digital Wall Coverings



Coated & Uncoated Paper  
Digitally Receptive Coverings



Wide Colour Gamut  
A Wide Color Gamut is essential in inkjet printed wallpaper to ensure clients can reproduce their patterns and designs. Nazdar NCW utilizes custom pigment dispersion technology to give a wide and consistent color range every time.



Standard Colour Range



Extended Colour Range

## WATER-BASED PACKAGING

### Nazdar NCB

Corrugated cardboard sheet is a lightweight, versatile, eco-friendly substrate that maintains rigidity while offering the flexibility of cutting and creasing. Nazdar NCB Series can digital print directly to the face of corrugated cardboard, making it ideal for branding and promotional printing. NCB inks are also well-suited to print the variable data that is commonly found printed on such boxes.



Packaging  
Display  
POP  
Promotional Items



Uncoated Corrugated Boards  
Kraft Corrugated Boards  
Specialty Corrugated Boards



Special Features  
Fast drying time  
Wide color-gamut  
Vibrant colors  
Low board distortion  
High scuff resistance

NCB offers outstanding results on many top liners used in today's corrugated market

- Kraft (K): Virgin Kraft paper
- Test 2 (T2): Partly recycled liner paper
- Test 3 (T): Fully recycled liner
- Fully Bleached White (BW): Fully bleached Kraft liner
- White Top (WT): White coated recycled liner
- Mottled Kraft (MK): Mottled white Kraft



Standard Colour Range



Extended Colour Range

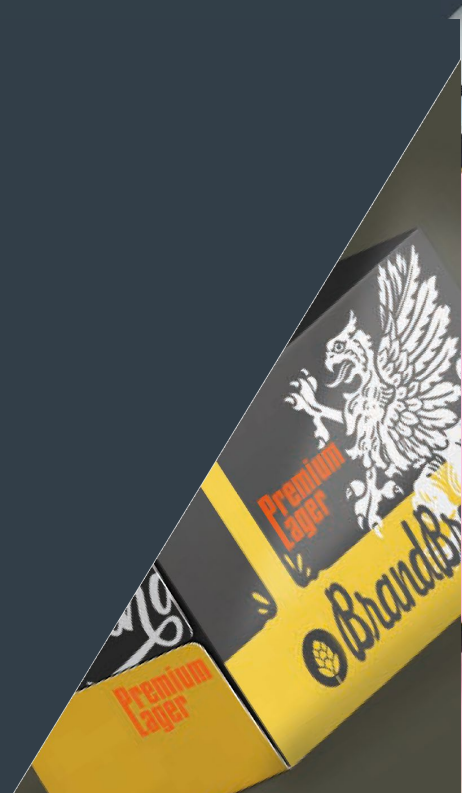
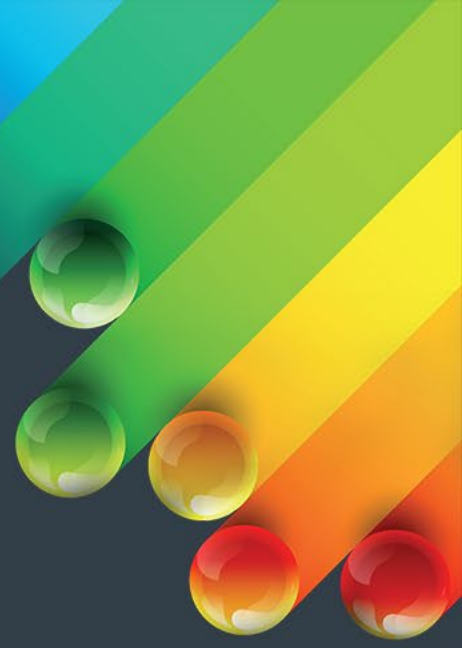
### Water-Based Packaging

**Additional Products:**

- Flexo Overcoats
- Flexo Inkjet Receptive Coatings UV Inkjet
- Over Clear
- Cleaning Solution

Viscosity Range:

10-12cPs @25°C



## WATER-BASED PACKAGING

### Nazdar NPF

The use of flexible film in food and product packaging has increased exponentially, offering increased brand-awareness while improving shelf-life and cost-efficiency.

Nazdar's NPF inks have been designed to produce high-quality, full-color graphics on flexible film products, with excellent performance even at industrial output levels.

### Water-Based Packaging

#### Additional Products:

- Combination Printing
- Flexo White
- Flexo Overcoats
- Flexo Inkjet Receptive Coatings
- Cleaning Solution

#### Viscosity Range:

3-5cPs @25°C

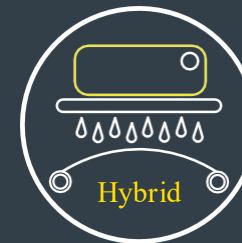
6-7cPs @25°C



Product Labeling  
Clear Packaging  
Food Beverage



Flexible Films  
PET  
BOP



Nazdar NPF is fit for current flexo/inkjet technology.



High Speed  
Fast drying time  
Wide color-gamut  
Vibrant colors  
NIR drying



Standard Colour Range



Extended Colour Range



## 3D PRINTING

### Nazdar 3D

Nazdar L3D inks have been designed for excellent performance in High Speed Sintering (HSS) 3D-printing applications. Unlike other 3D-printing methods, HSS offers industrial-level production potential, due to its output speed capabilities.

HSS printing begins by depositing a fine layer of powder onto the bed surface of an HSS machine. An inkjet printhead passes across the layer, depositing the L3D inks (infrared light- absorbing fluids) directly onto the powder surface. The surface is irradiated with infrared light, causing the "printed" areas to melt (sinter); the unprinted areas remain as powder. A new layer of powder is added, and the process is repeated, layer-by-layer, until the 3D-object is complete. The un-sintered powder is removed to reveal the final, printed component.

This next-generation process offers the ability to create an entire printing-bed of objects at once, allowing for faster creation of multiple 3D-printed objects.



High Speed Sintering



Polymer Powder



#### Special Features

Multiple chemistries:

Oil

Mineral Oil Free (MOF)

Water-Based

Outstanding bond strength  
and flexibility

## 3D Printing

### Additional Products:

Cleaning Solution

Viscosity Range:

6-7cPs @25°C

11-12 cPs @25°C



The inks listed in this guide represent a starting point for the development of a product for the specific needs of an OEM project. You may find that an ink we have available will work perfectly for your application, or we may need to develop a partnership to produce a custom solution.

### Nazdar's team is here to support your ink development

As one of the largest OEM ink manufacturers in the world, our years of experience in both analog and inkjet fluid development allow us to build custom fluids that meet the demands of any given market segment.

Achieving high-resolution accuracy with a specially-designed fluid – which also includes all required end-use characteristics – is a significant challenge. Nazdar's print experience and advanced chemistry knowledge allows us to provide these ideal fluid solutions at the right price point.

### Inkjet technology is pushing forward

It takes approximately 100 microseconds for a typical fluid droplet to be formed, travel to the substrate, land in the correct place, and start forming the correct image.

By comparison, a NASCAR™ vehicle will travel less than 1cm in the time it takes a fluid droplet to be ejected & land. In today's digital integrations, each head must accurately place up to 15 billion droplets of ink every second in order to form a high-resolution decoration.

Within the machine, an individual nozzle may fire up to a further 8 droplets of ink while the first droplet is still in flight. Therefore, it is paramount that each droplet in flight keeps its uniformity and shape through its short journey.

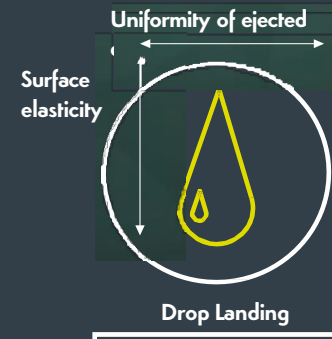


#### Satellite Reduction Chemistry

Nazdar fluids have been chemically designed such that each ejected drop has outstanding rheology properties that greatly reduce the risk of heavy satelliting.

SRC helps with drop placement quality, reducing the need for the integration of mist mediation devices within the printer.

Drops have visibly improved in-flight elasticity, with the ligature showing uniformity even at high throw distances.



## HIGH VISCOSITY AQUEOUS INKJET INKS

Nazdar's HighV Aqua Series offers unrivalled performance optimization for a variety of applications:

- Aqua Tex: textiles,
- Aqua Code: coding and marking
- Aqua Coro: corrugated board
- Aqua Flex: flexible packaging

Utilizing the HighV Aqua series extended viscosity window, Nazdar delivers customized features to Original Equipment Manufacturers. OEMs can now elect to focus on vibrant, high density color, higher productivity and print speed, reductions in energy consumption in the drying process, and/or vastly reduced ink usage.

Close co-operation with the Nazdar OEM Ink Team ensures true market advantage over the competition in a growing number of Key market segments.



## TEXTILES

### Nazdar HighV AquaTex

Nazdar's HighV AquaTex is ideally suited to Direct-to-Garment and roll fabric cottons. By utilizing extremely high density white reduced ink levels can be achieved. This delivers a far superior feel while also reducing ink usage, increasing print speed and the potential to reduce the required drying energy.

High density, wide gamut colored inks complete this set to give exceptional printed results while maintain excellent wash fastness.



#### Application

Fashion  
Décor



100% Cotton  
Cotton Rich Blends  
White Roll Cotton



#### Wash Fastness

Excellent wash fastness achievable through Nazdar dispersion technology.



Standard Color Range



Extended Color Range

## Textiles

### Additional Products:

Cleaning Solution  
Conditioning Fluids  
Fabric Pre-treatment

### Viscosity Range:

Customized to meet the OEM Requirement

Elective: 30-95cPs @25°C

100% Cotton

Cotton – Rich Blends

White Roll Cotton



**NAZDAR**  
INK TECHNOLOGIES

**OEM**  
GROUP

## WATER-BASED PACKAGING

### Nazdar HighV AquaCode

Nazdar's HighV AquaCode use Ultra High Viscosity Technology to deliver extremely high density white and black digital inks for coding and marking. This enables unrivalled print speed and fidelity essential for high productivity. OEMs can incorporate AquaCode inks to increase print speed while also improving the readability of barcodes and QR codes.



Standard Color Range

## Water-Based Packaging

### Additional Products:

- Combination Printing
- Flexo White
- Flexo Overcoats
- Flexo Inkjet Receptive Coatings
- Cleaning Solution

### Viscosity Range:

Customized to meet the OEM Requirement

Elective: 30-95cPs @ 25°C



## WATER-BASED PACKAGING

### Nazdar HighV AquaFlex

Nazdar's HighV AquaFlex use Ultra High Viscosity Technology to provide inks suitable for a wide range of flexible packaging. With faster jettable application, these high viscosity products can reduce drying time and adhere to a wider variety of surfaces. HighV AquaFlex advanced dispersion ensures image quality and substrate adhesion while maintaining exceptional open time and printhead performance.

#### Water-Based Packaging

**Additional Products:**

- Combination Printing
- Flexo Overcoats
- Flexo White
- Flexo Inkjet Receptive Coatings UV Inkjet
- Over Clear
- Cleaning Solution

Viscosity Range:  
Customized to meet the OEM Requirement  
Elective 30-95cPs @ 25°C



**Application**

- Packaging
- Display
- POP
- Promotional Items



**Substrate**

- Uncoated Corrugated Boards
- Kraft Corrugated Boards
- Specialty Corrugated Boards



**Special Features**

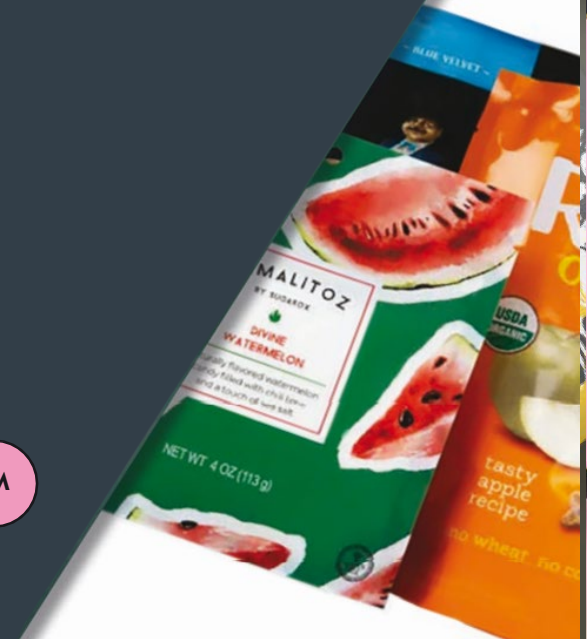
- Fast drying time
- Wide color-gamut
- Vibrant colors
- Low board distortion
- High scuff resistance



Standard Color Range



Extended Color Range



## WATER-BASED PACKAGING

### Nazdar HighV AquaCoro

Nazdar's HighV AquaCoro use Ultra High Viscosity Technology to deliver digital inks designed for printing directly to corrugated board, packaging and DTS. HighV AquaCoro has hugely enhanced color characteristics to provide ultra high color density. By utilizing a higher viscosity jettable range it is possible to vastly reduce absorbency, lowering ink consumption and benefiting more efficient drying.



**Application**

Packaging  
Display  
POP  
Promotional Items



**Substrate**

Uncoated Corrugated Boards  
Kraft Corrugated Boards  
Specialty Corrugated Boards



**Special Features**

Fast drying time  
Wide color-gamut  
Vibrant colors  
Low board distortion  
High scuff resistance



Standard Color Range



Extended Color Range

## Water-Based Packaging

### Additional Products:

- Combination Printing
- Flexo Overcoats
- Flexo White
- Flexo Inkjet Receptive Coatings UV Inkjet
- Over Clear
- Cleaning Solution

Viscosity Range:  
Customized to meet the OEM Requirement

Elective 30-95cPs @ 25°C

**AquaCoro offers outstanding results on many top liners used in today's corrugated market**

- Kraft (K): Virgin Kraft paper
- Test 2 (T2): Partly recycled liner paper
- Test 3 (T): Fully recycled liner
- Fully Bleached White (BW): Fully bleached Kraft liner
- White Top (WT): White coated recycled liner
- Mottled Kraft (MK): Mottled white Kraft

