

**CAPSULES** 

# Better delivery.



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ACG

# Welcome to ACG.

We know how hard it can be to get better. That's why, for 62 years, we've been getting better at helping make people better.

ACG is a privately owned enterprise that takes a long term relationship approach to business. We believe that everything works better when people work better together.



# Everyone on Earth deserves access to better health.

With a presence in 138 countries on six continents, ACG is now the world's largest integrated supplier of components and solutions for manufacturing oral solid dosage formulations. We provide hard-shell capsules, barrier packaging materials, pharmaceutical and nutraceutical manufacturing machinery, and fully integrated track and trace solutions.

#### Capsules

With 'reliability' at the centre of our Capsules business ethos, ACG has a hard-shell gelatine and HPMC capsule for almost every application. Plus, customisation options are virtually limitless.

#### **Packaging materials**

We supply the world's largest range of both film and foil barrier materials, with almost everything produced in-house for greater quality control. Expert advice is the key to your perfect solution.

#### Machinery

ACG provides a full spectrum of oral dosage manufacturing equipment. Our global design team takes a customer-led approach, and we're renowned for exceptional after-sales service.



# Everywhere you need us.



ACG

# Welcome to ACG Capsules.

The second

Health products are only as good as how well they're delivered.

In order to maximise product efficacy through better delivery, ACG manufactures a comprehensive range of gelatine and HPMC capsules in every imaginable size. If you still can't find exactly what you need, then why don't we partner to create something new? Our team of experts is always on hand.



Version 1.1 (0323)

# What makes ACG Capsules better?

### Reliability at the centre of everything

Reliability really is at the core of our Capsules division. From supplying capsules of consistently high quality, to providing comprehensive testing procedures and compliance documentation, to giving advice you can trust, to ensuring orders are received on time.

When the world is relying on you, you can rely on us.

2

#### Only we see the big picture

You already know that working with capsules involves far more than just capsules. It's also about how those capsules perform on your machines, how you protect them from moisture and oxygen, and how you ensure they aren't tampered with during the supply chain.

As the world's only integrated capsules solution provider (having 'Capsules', 'Engineering' and 'Packaging Materials' divisions), only ACG can offer holistic and integrated advice on your capsules manufacturing processes, and provide everything you need from under one roof.

3

#### Leaders in 'clean'

In 2020, ACGcaps™ H+ became the world's first independently certified 'clean' capsule.

Rigorously examined by the Clean Label Project (USA) for over 400 industrial and environmental contaminants, it passed every test. That means there's only one capsule that currently satisfies changing consumer demands for cleaner and greener products. And that's great news for you and your brand.

4

#### We're champions of customisation

Not only do distinctive capsules prevent patient dosing errors, but they also allow for greater brand differentiation. Additionally, capsule customisation can help prevent counterfeiting and encourage better consumer loyalty through easy identification.

That's why ACG has made it a priority to offer almost limitless (and unmatched) customisation options through colour, opacity and printing. Now you can genuinely make our capsules your own – because nobody does customisation better.

5

#### A capsules development laboratory

As an ACG customer, our laboratories are your laboratories.

Over the past fifty years, ACG's formulation laboratory in Mumbai has undertaken compatibility studies for over 4,000 products. The lab was significantly refurbished and upgraded in 2019, and added the capability to undertake almost every aspect of pharmaceutical formulation development – from creating new raw materials, to conducting polymer and dissolution trials, to performing stability tests. We even have a capsule colour-matching facility.

CAPSULES / Welcome to ACG Capsules



# Introducing ACG vegetarian capsules.

### At the forefront of HPMC capsule development.

Our mission to collaboratively keep creating a healthier world remains at the heart of everything we do.

ACG HPMC capsules allow for excellent bioavailability of contents, ensuring efficient dissolution and quick release. They are allergen-free, offer excellent stability (protecting ingredients from moisture and oxygen) and are rigorously tested against global regulatory standards.

All of this, while also matching consumer preferences for healthier, cruelty-free, and more sustainable products.

#### **Now cleaner and kinder**

Completely natural, our capsules are also vegan and so 100% free from animal products. ACGcaps™ H+ is formulated from only water and cellulose (without gelling agents) and was the world's first independently certified 'clean label' capsule.

#### Now even more versatile

Our vegetarian capsule range is excellent for moisture-sensitive or hygroscopic ingredients, and features a variant for almost every application – from delayed release to liquid-fill, to dry powder inhalation. We also have a premium capsule especially designed for demanding formulations.

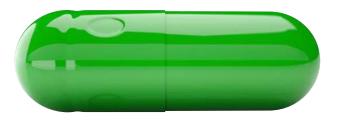
#### Now fully customisable

Our vegetarian capsules can be perfectly clear to show off your product, or made opaque and coloured for better brand stand-out. We even have completely natural colour and opacity options that allow you to customise without compromising on 'clean'.



# **Discover the ACG** vegetarian range.





**ACG**caps™ HR A flexible multi-purpose vegetarian capsule



**ACG**caps™ H+ Our cleanest vegetarian capsule



**ACG**caps™ HL A vegetarian capsule for liquid filling



**ACG**caps™ HX Our delayed release vegetarian capsule



**ACGcaps™ HI** 

A vegetarian capsule for dry powder inhalation



**ACG**caps™ **HA** 

Addresses specific dissolution requirements

# Our vegetarian range at a glance.



#### APPEARANCE

PRODUCT	APPLICATION	TWO COLOUR PRINTING	CLEAR	CLEAR W/COLOUR	WHITE OPAQUE	OPAQUE W/COLOUR
ACGcaps™ HR A flexible multi-purpose vegetarian capsule	PN	~	~	<b>✓</b> *	<b>✓</b> T	✓ * T §
ACGcaps™ H+ Our cleanest vegetarian capsule	PN	<b>✓</b>	~	<b>✓</b> * 0	<b>✓</b> T	✓ * T
ACGcaps™ HL A vegetarian capsule for liquid filling	PN	<b>✓</b>	~	<b>✓</b> *	<b>✓</b>	✓ * T §
ACGcaps™ HX Our delayed release vegetarian capsule	N	<b>✓</b>	~	✓	✓	<b>✓</b>
ACGcaps™ HI A vegetarian capsule for dry powder inhalation	Р	<b>✓</b>	~	<b>✓</b> *	~	✓ * T
ACGcaps™ HA Addresses specific dissolution requirements	Р	<b>✓</b>	×	×	~	✓ * T

**P** Suitable for pharmaceutical applications

N Suitable for nutraceutical applications

<sup>\*</sup> Choose from 10,000+ shades in ACG's online colour library

**O** Choose from natural colours in the ACGcaps™ NTone range

T Can be used with titanium dioxide-free opacifiers (ACGcaps™ TSafe)

<sup>§</sup> Available in a pearlescent finish

# ACGcaps™ HR



#### A flexible multi-purpose vegetarian capsule.

A versatile capsule made with plant-sourced cellulose, and so providing an alternative for vegan and vegetarian consumers. ACGcaps™ HR is manufactured in compliance with global regulatory standards, ensuring quality and safety.

#### Key features

- / Compatible with a wide range of formulations (including hygroscopic and moisture-sensitive ingredients), allowing for diverse product development
- / Demonstrates excellent stability preserving the potency of enclosed substances over time, and reducing the risk of cross-linking
- / Free of animal products and common allergens, making it suitable for individuals with dietary restrictions or sensitivities
- / Maximises yield on high-speed filling machines
- / Proven machine-friendly design

#### Suitability



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# ACGcaps™ H+



#### Our cleanest vegetarian capsule.

ACGcaps™ H+ is the world's first independently certified\* 'Clean Label' capsule. This means it has been specially and rigorously tested by the Clean Label Project, and found to be free from more than 400 industrial and environmental contaminants and toxins (including heavy metals) and more than 300 commonly used pesticides, plasticisers and other unwanted chemicals. ACGcaps™ H+ is manufactured with thermogelation technology that uses only water and cellulose – no gelling agents.

#### Key features

- / Can be filled with powders, pellets, granules and liquids, or combinations thereof
- / Fulfils the dissolution requirement, regardless of pH or ionic strength
- / Superior heat stability in storage, with no cross-linking issues
- / Low inherent moisture
- / Meets the requirement of pharmaceutical products

#### Suitability



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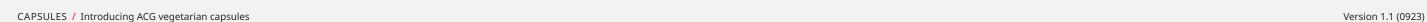












 $<sup>\</sup>mbox{\ensuremath{\star}}$  Certifications are applicable to certain colours and / or variants.

# ACGcaps™ HL



#### A vegetarian capsule for liquid filling.

ACGcaps™ HL is a superior and cost-effective capsule for liquid contents. We've designed it to accommodate a broad spectrum of ingredients within liquid, and to open up fresh opportunities for innovation – especially for poorly soluble drugs, or natural active ingredients known to pose formulation challenges.

#### Key features

- / Ideal for liquids, semi-solids, pastes, hot-melts and gels
- $^{\prime}$  Can also hold tablets, pellets, capsules (or combinations thereof) in liquid
- / Secure and tamper-proof band sealing with colours to enhance product stand-out
- / Addresses the bioavailability challenges of poorly watersoluble drugs (such as BCS Class II and IV compounds)
- / Helps resolve the formulation challenges of low-dose and poorly water-soluble drugs, and natural ingredients
- / Liquid-filling reduces the cross-contamination risks associated with powder filling (as in the case of highly potent APIs)
- / Suitable for use with hot-melt liquids up to 70°C

#### Suitability



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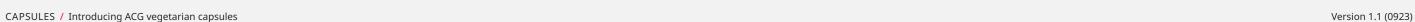














# ACGcaps™ HX



#### Our delayed release vegetarian capsule.

Designed for delayed release applications, ACGcaps™ HX capsules are manufactured using a special polymer that protects ingredients from gastric acid. This ensures targeted delivery in the desired intestinal region for optimal efficacy and bioavailability.

#### Key features

- / Delayed release with a proven and guaranteed disintegration time of no less than 30 minutes<sup>1</sup>
- / Customised release profiles can be created to deliver active ingredients at precise times or specific locations within the gastrointestinal tract
- / Reduces risk of acid reflux or irritation to the gastric mucosa
- / Suitable for acid-sensitive ingredients such as enzymes, prebiotics, and probiotics
- / Ideal for heat-sensitive active ingredients that can degrade during coating
- / Accelerates product development, and saves on additional coating processes and costs





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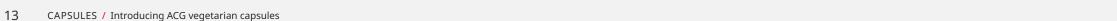














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<sup>&</sup>lt;sup>1</sup> Disintegration test performed as per ACG's in-house protocol

# ACGcaps™ HI



#### A vegetarian capsule for dry powder inhalation.

Developed after extensive studies on powder retention, ACGcaps™ HI has been specifically engineered for use with dry powder inhalation devices. ACGcaps™ HI ensures accurate dosing, uniform dispersion, and efficient drug delivery to the respiratory system, enhancing medication effectiveness and patient outcomes.

#### Key features

- / Low powder-retention for maximum dose delivery
- / Proven puncturing, cutting and twist-open performance
- / Compatible with a variety of inhalation devices
- / Suitable for a wide range of active pharmaceutical ingredients
- / Proven machine-friendly design
- / Complies with stringent regulatory requirements for microbiological limits
- / 100% vegan, without compromising on quality





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# ACGcaps™ HA



#### Addresses specific dissolution requirements.

ACGcaps™ HA is an inert, high-performance, cellulose-based capsule that addresses specific dissolution requirements in 0.01N HCl. This ensures an accurate drug-release profile that allows for predictable and controlled release of the encapsulated drug, and precise formulation development.

#### Key features

15

- / Suitable for molecules requiring dissolution in 0.01N HCl (pH 2.0)
- / Provides confidence in achieving reproducible results and batch-to-batch consistency
- / Less susceptible to cross-linking
- / Accurate predictions of a drug's release behaviour offer flexibility in formulation development
- / Proven machine-friendly design
- / Consistent quality and manufacturing performance

#### Suitability



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CAPSULES / Introducing ACG vegetarian capsules

Version 1.1 (0923)

# Introducing ACG gelatine capsules.

### Capsules you can trust from a company you can rely on.

ACG gelatine capsules rapidly dissolve in the stomach, exhibiting consistent dissolution characteristics across batches. Coupled with strict adherence to global safety and quality standards, this makes our gelatine capsules the ultimate choice for efficiency and reliability in pharmaceutical and nutraceutical manufacturing.

Efficiency and reliability are at the centre of our service philosophy, too, with ACG offering shorter lead times and guaranteed supply – wherever in the world you may be.

#### They're patient-friendly

With their smooth and slippery surfaces, our gelatine capsules are designed for easy swallowing. Also, and to reduce pill burden, multiple actives with different release profiles can be filled in a single capsule.

#### They're versatile

Hard capsules offer unmatched flexibility. Fill them with just about anything – singly or in combination – from powder blends and granules, to beads, semi-solids and liquids, to tablets, mini-tablets, and even to mini-capsules.

#### They're fully customisable

Our capsules can be perfectly clear to show off your product, or made opaque and coloured for better brand stand-out. You can give them a pearl-like finish if you like, and / or opt for 360° printing.



# Discover the ACG gelatine range.





**ACGcaps**<sup>TM</sup> **GR**A flexible multi-purpose gelatine capsule



**ACGcaps**<sup>TM</sup> **GL**A gelatine capsule for liquid filling



**ACGcaps**<sup>TM</sup> **GI**A gelatine capsule for dry powder inhalation

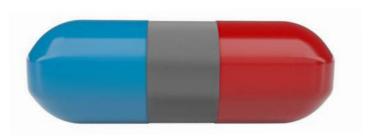


ACGcaps<sup>TM</sup> GC
For clinical trials



ACGcaps<sup>TM</sup> GF

Made with fish gelatine



ACGcaps<sup>™</sup> GT
For enrobing caplets

# Our gelatine range at a glance.



#### APPEARANCE

PRODUCT	APPLICATION	TWO COLOUR PRINTING	CLEAR	CLEAR W/COLOUR	WHITE OPAQUE	OPAQUE W/COLOUR
ACGcaps™ GR A flexible multi-purpose gelatine capsule	PN	~	~	<b>✓</b> *	<b>✓</b> T	✓ * T
ACGcaps™ GL A gelatine capsule for liquid filling	PN	✓	<b>✓</b>	<b>~</b> *	✓	✓ * T
ACGcaps™ GI A gelatine capsule for dry powder inhalation	Р	✓	<b>✓</b>	<b>/</b> *	<b>✓</b>	✓ * T
ACGcaps™ GC For clinical trials	Р	<b>* ^</b>	✓	~	✓	✓ * T
ACGcaps™ GF Made with fish gelatine	N	×	✓	×	×	×
ACGcaps™ GT For enrobing caplets	PN	×	~	<b>✓</b> *	~	✓ * T

**P** Suitable for pharmaceutical applications

**N** Suitable for nutraceutical applications

<sup>\*</sup> Choose from 10,000+ shades in ACG's online colour library

T Can be used with titanium dioxide-free opacifiers (ACGcaps™ TSafe)

Available with one colour printing only

# ACGcaps™ GR



#### A flexible multi-purpose gelatine capsule.

This consistently high performing capsule has easy machineability, which makes it a popular choice for both pharmaceutical and nutraceutical applications.

Combined with a wide spectrum of choice in design, colour, size and printing, ACGcaps™ GR is the reliable and superior quality capsule of choice for many of our partners.

#### Key features

- / Fully versatile, and ideal for immediate-release formulations
- / Available in 15 sizes (000 to 5) and in more than 10,000 colour shades
- / Maximises yield on high-speed filling machines
- / Proven machine-friendly design

#### Suitability



PHARMACEUTICAL



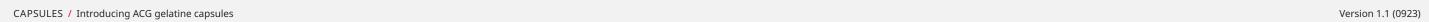
NUTRACEUTICAL













## ACGcaps™ GL



#### A gelatine capsule for liquid filling.

ACGcaps™ GL is a superior and cost-effective gelatine capsule for containing liquids. Designed to accommodate multiple ingredients, this standout capsule represents fresh opportunities for innovation. It's especially practical for low-dose, low-solubility drugs, or for natural active ingredients known to pose formulation challenges.

#### Key features

- / Designed to contain liquids, semi-solids, pastes, hot-melts, oils and gels
- / Can also hold tablets, pellets and capsules (or combinations thereof) in liquids
- / Secure and tamper-proof band sealing
- / Helps enhance the bioavailability of ingredients known to be partially soluble or insoluble
- / Resolves the formulation challenges of low-dose and poorly water-soluble drugs, and natural ingredients
- / Easier to swallow for some individuals than other encapsulated liquid dose forms





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# ACGcaps™ GI



#### A gelatine capsule for dry powder inhalation.

Developed specifically for use with dry powder inhalation devices, ACGcaps™ GI capsules ensure accurate dosing, uniform dispersion, and efficient delivery to the respiratory system, enhancing drug effectiveness and patient outcomes.

#### Key features

- / Designed for low powder retention and maximum dose delivery
- / Efficient puncturing, cutting and twist-open performance
- / Compatible with a variety of inhalation devices
- / Suitable for a wide range of pharmaceutical ingredients
- / Proven machine-friendly design

#### Suitability



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# ACGcaps™ GC



#### For clinical trials.

ACGcaps™ GC was specifically designed to ensure integrity in double-blind clinical studies. Complying with global standards, it meets strict quality and safety requirements, facilitating easier regulatory approvals and smooth trial progress.

#### Key features

- / Masks drug and placebo with secured locking
- / Accommodates various active ingredients, offering a high level of formulation versatility
- / Compact and short, making it easier for participants to swallow
- / Uniquely shaped and tamper-proof, so also suitable for commercial use
- / Available in universally accepted standard colours

#### Suitability



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# ACGcaps™ GF



#### Made with fish gelatine.

ACGcaps™ GF derives from fish by-products and therefore contributes to environmental sustainability. These capsules also provide a cruelty-free option for those avoiding mammalian-sourced gelatine, and has lower allergenicity. Fish gelatine is efficient at protecting ingredients from environmental degradation factors, and is highly digestible.

#### Key features

- / Meets all requirements regarding BSE or TSE in Regulation (EC) No. 999/2001, and all amendments thereof
- / Low water vapour transmission rate (WVTR) and low oxygen permeability (OTR), making it ideal for water and oxygen-sensitive ingredients
- / Proven machine-friendly design

#### Suitability



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# ACGcaps™ GT

# G GELATINE

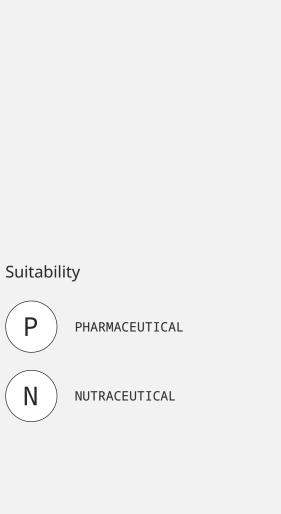
#### For enrobing caplets.

Using ACGcaps™ GT unleashes great opportunities to differentiate your brand in an increasingly overcrowded market.

Comprising two identically shaped gelatine shells, ACGcaps™ GT allows you to completely enclose caplets (capsule-shaped tablets). A gap can also be left between shells, with the caplet in the very centre of the capsule.

#### Key features

- / Creates brand stand-out
- / Masks unpleasant tastes and odours in active ingredients or excipients
- / Easy to swallow and patient-friendly
- / Tamper-evident design
- / Can help to extend product lifecycles
- / ACGcaps™ GT Plus variant offers full capsule enrobing
- / ACGcaps™ GT Pro variant leaves a gap in between shells for more rapid disintegration and quick release of drugs









These certifications are applicable to certain colours and / or variants.



# Customise your capsules.

Make our capsules your own.

In a fiercely competitive marketplace, it's easy for your products to get lost in the crowd. Not only will our myriad customisation options help you stand out, but they will also make your brand instantly recognisable. Furthermore, easier identification of medicines through capsule customisation can encourage better patient adherence.



#### **ACG**caps<sup>™</sup> **NT**one

Colour can be a vital product attribute, but it should also be clean. Our ACGcaps™ NTone pigments allow you to create 100% natural, brilliantly coloured capsules.

#### **ACGcaps™ TSafe**

Create opaque, and completely clean, capsules with our TiO2 free opacifiers. ACGcaps™ TSafeenhanced capsules can also be pigmented with a range of colours.

#### **ACGcaps™ Brandshield**

Print in two colours onto your capsules with our industry-leading 360° radial or axial printing technologies. Great for your brand, or as an anti-counterfeiting solution.

#### **ACG**caps™ Pearlz

Add a premium and distinctive pearlescent finish to create capsules with real appeal and stand-out. Currently only available with our HR and H+ variants.

#### **ACG** colour library

Over 10,000 shades to choose from, or let's develop one just for you. Experts can also provide guidance on colour selections to ensure global regulatory compliance.

# Always adding value.

# As far as we're concerned, purchasing your capsules is only the beginning.

Because we take a long term approach to relationships, your success means our success too. Our value-added services are here to help you evolve your product and stay on the frontline of global trends.

#### **Technical services**

ACG doesn't only make capsules, but also the machines that work with them. This means our engineers and manufacturing experts are on-hand to advise on working with capsules more holistically – helping minimise downtime, and maximise efficiencies and yield.

#### **Formulation development**

As an ACG customer, our capsules formulation laboratory is always at your disposal. Our people can help undertake almost every aspect of formulation development, from conducting compatibility and dissolution studies, to undertaking stability tests.

# Let's talk.

We look forward to hearing from you.

Get in touch with us to find out more about our range of products and services. If your formulation has specific delivery needs, we can even collaborate on creating a purposemade solution.

#### **Email us**

sales.capsules@acg-world.com

**North America** 

Canada **United States** 

Central and South America

Bolivia Brazil Colombia Cuba

Dominican Republic

El Salvador Guatemala Paraguay Peru Venezuela

Europe Bulgaria

Croatia

Czech Republic

Denmark Germany Greece Italy

Latvia Lithuania Macedonia Poland Russia

San Marino Serbia Spain

Switzerland Ukraine

United Kingdom

Africa Algeria Egypt Ethiopia Kenya Morocco South Africa

Tunisia

Middle East

Iran Iraq Israel Jordan Saudi Arabia

Syria

**United Arab Emirates** 

**Asia Pacific** 

Australia Bangladesh China India Indonesia Malaysia New Zealand Philippines South Korea Sri Lanka Taiwan Thailand

Vietnam

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