Stringent supply chain quality and security measures that comply with United States Pharmacopeia (USP) standards have helped expand Shell’s capability to provide USP grade isopropyl alcohol (IPA) to the pharmaceutical and healthcare sectors in the USA. This has led to new strategic customer relationships, including a sole supplier position with Vi-jon, one of the leading producers of alcohol-based personal care and skin hygiene products.

Demand for USP grade IPA has increased significantly due to its growing use in high volume personal care and skin hygiene products. The formulators of these products use IPA because they say it provides important disinfecting properties and is able to kill bacteria and viruses on contact. Its formulation flexibility, meanwhile, allows it to be incorporated into a range of hand and skin sanitisers as alcohol rubs, wipes or other topical treatments.

These are applications where IPA is classified as an active pharmaceutical ingredient in the USA, and so is subject to USP [see box on next page] requirements under the strictest current Good Manufacturing Practice (cGMP) guidelines. These guidelines are designed to assure consumers of the provenance of over-the-counter healthcare and personal care products.

IPA is a key active ingredient in many types of hand sanitising and first aid products that are subject to stringent supply chain controls.
that are supplied into the pharmaceutical and personal care industries,” explains Dave Laucella, Solvents Technical Manager Americas.

“Recognising this growing requirement, we took the decision to reinstate and expand our USP compliance systems in order to service this important customer group.”

He says companies in these sectors are among the largest consumers of IPA, and require robust and responsive supply chains. “It’s a high volume business and if you design and manage the supply chain well, you become a strategically important supplier of a key raw material,” he says.

“Under cGMP and USP we are responsible for the documentation and delivery of quality assurance, not just during manufacturing but throughout the supply chain, right up until we physically hand product over to the customer.”

DEDICATED EQUIPMENT

The ultimate aim is to ensure that the integrity of the IPA is maintained, by eliminating any potential for contamination or adulteration of the product.

A USP supply chain involves using dedicated equipment at every stage of a delivery journey, including storage tanks, road and rail tank cars, right down to the hoses, pumps and couplings used to transfer or discharge product.

“Handling procedures, quality controls and documentation follow prescribed protocols to maintain the integrity of the product, with samples taken at each stage of the delivery to provide an auditable trail of quality assurance,” says Laucella.

Shell has been marketing USP grade IPA in North America since 2007 and has implemented cGMP/USP processes and controls at its world-scale IPA manufacturing site in Sarnia, Canada, as well as at strategic terminals located across the USA, and through the road and rail transport logistics linking them with customers.

This capability has led to developing customer relationships with key IPA users including Vignon, one of the oldest and largest producers of consumer health and beauty care products.

Vignon produces several leading brands, but focuses mostly on private label products for many of the country’s leading retailers. USP grade IPA is one of its main bulk raw materials, and Shell has developed a tailor-made supply chain to meet its growing needs.

Vignon’s alcohol-based rubs, lotions and sanitary wipes are subject to USP compliance because they are classified as pharmaceuticals that come into direct contact with human skin.

“We have built our relationship with Vignon, step-by-step, based on the foundation of our ability to provide USP grade IPA to match their increasing volume requirements, reliably and securely,” explains Terry Duffy, Solvents Sales Manager.

“Once we had proven the robustness of the supply chain, we were able to ramp up our supply capability and quickly went from supplying around half of Vignon’s needs to 100% of its IPA volume.”

As a result, Vignon is now one of Shell’s largest customers for IPA globally, which puts a lot of demands on the effectiveness of the USP supply chain. “Sure supplier status means the stakes are high and we have a greater degree of reliance on each other,” says Duffy, “but equally, encourages us to develop a closer, more strategic relationship.”

Tim Williams, Vignon’s Chief Operations Officer, says: “USP grade IPA is an essential raw material for a number of first aid applications, which is one of our largest product categories. It is a mandatory requirement in many formulations, and the integrity of our products is vital for our reputation.

“Having one supplier for IPA is a way to enhance our security of supply because of the large volumes involved, and the fact that USP controls require a big commitment from Shell, which would be difficult to replicate across multiple vendors. “Shell has the reassurance of a global manufacturing capability and, as our sole supplier, a lot invested in the success of the relationship.”

SUPPLY CHAIN FLEXIBILITY

“We have enormous, but fluctuating, demand for our products and have to match the peaks and valleys in our customers’ ordering patterns with our batch production processes. The arrangement with Shell has delivered good levels of service and, critically, the supply chain flexibility we need.”

The supply chain implemented for Vignon involves the use of a bespoke logistics model. Product is
shipped by rail from Sarnia to Tennessee, where it is trans-loaded directly into dedicated road tankers for the final leg of the delivery journey. The trans-loading takes place at Shell distributor Univar’s Murfreesboro terminal, situated less than one hour from Vi-Jon’s site at Smyrna, just outside of Nashville. “In setting up the supply chain, we worked closely with Univar’s local operations team to design the logistics operations, product handling, quality controls and documentation prescribed by USP,” says Duffy.

“Being able to trans-load directly into road tankers removes the need for intermediate storage, which would otherwise create another link in the supply chain and increase potential for product contamination or adulteration.”

OPERATIONAL PLANNING

The Univar terminal receives a constant stream of railcars from Sarnia, while up to six road tankers per day leave the facility for the onward delivery to Vi-Jon. Monthly supply chain meetings between Shell customer service and sales personnel, the customer and distributor, are used for ongoing demand forecasting and operational planning. “We are always looking ahead to preempt any potential threats to supply and to plan for changes in the customer’s volume requirements,” says Duffy.

“Working closely with Vi-Jon’s local purchasing and supply coordinators at the Smyrna plant also helped to ensure effective supply chain planning.”

Over 90% of Vi-Jon’s IPA-based products are private label goods for retailers who often use them as “loss leaders” or “traffic drivers” in promotional marketing campaigns. “We operate in unpredictable and fast moving retail markets,” says Williams. “One promotion by any of our major retail customers can drain our inventory in a heartbeat, and we need to know the USP grade IPA will be there when we need it.”

He says Shell’s supply chain has met these demands. “The use of trans-loading effectively gives us local ‘storage on wheels’ and the short distance from the terminal to our site means we receive supplies almost on a ‘just-in-time’ basis.”

This performance led to Shell being named Vi-Jon’s vendor of the year in 2010, based on quality, service, innovation and shared benefits. Williams says the relationship with Shell is an example of Vi-Jon’s strategic vendor partnering. “Shell has the scale and global presence we look for from a long term supply partner, and the buying power and supply capability that will help to mitigate the effects of volatile feedstock prices,” says Williams. “As our market share is still growing, we look forward to developing our relationship and exploring other opportunities to improve the way we do business together.”

Meanwhile, Shell is widening its capability to supply technical grade IPA across the USA, through accredited terminals in Chicago, Atlanta and Carson, California, which are close to large concentrations of industrial IPA users.

“Being able to supply higher volumes of USP IPA gives us opportunities to differentiate what is otherwise a commodity chemical,” says Duffy. “It also demonstrates our ability to design and operate complex supply chains and deliver high quality product and value-added service to the personal care and pharmaceutical sectors.”

For more information on the IPA visit: shell.com/chemicals/products/ipa