

## Cleared to launch BMK08 / Ectosan® Vet in Norway

5th July 2021

Norway's Medicines Agency (NoMA) has approved Benchmark Holdings' parasiticide BMK08 (imidacloprid) - to be branded Ectosan® Vet - for the treatment of sea lice in farmed salmon when used with its CleanTreat® water treatment system. Norway is the largest producer of farmed salmon globally and will be the initial focus of Benchmark's commercialisation efforts. Ectosan® Vet can only be sold with the CleanTreat® water purification system, which has been developed in parallel to prevent environmental contamination of the ocean. **Two CleanTreat® units are ready for the launch and up to five may be required to service the Norwegian salmon farming industry. Each CleanTreat® unit may generate sales of c £10m/year at full utilisation, so this new technology potentially represents a major contributor to revenue and EBITDA.**

- Key milestone:** Norwegian approval of Ectosan® Vet for use with CleanTreat®, is a key milestone for Benchmark and the culmination of a near decade long R&D programme. The product/technology combination has been subject to an extensive programme of commercial trials with top salmon producers and demonstrated 99%+ efficacy with large-scale water treatment. It represents a potential disruptive force in salmon aquaculture, providing a solution to the problem of sea lice infestation, offering improvements over existing alternatives in terms of efficacy, reduced fish mortality and environmental impact.
- Two CleanTreat® units in place to support the initial roll-out:** Benchmark has in place two CleanTreat® units – each on a ship – and will add more as demand justifies. It projects that up to five units may be required at peak to service the Norwegian salmon farming industry, each of which has the potential to generate sales of c £10m/year at full utilisation.
- Environmental controversies may remain:** Norway has the most stringent environmental regulations concerning salmon farming in the world and approval has been granted following a strict regulatory process. However, there is opposition from activist anti-fish farming groups principally on the grounds that accidental environmental exposure may have adverse ecological consequences. Benchmark is confident of the safety of its solution underpinning the regulatory approval obtain and will work with customers, consumers and other stakeholders to communicate the benefits and safety of the system in order to get wide adoption.
- Forecasts:** We have updated our financial model to reflect guidance on margins and speed of ramp up in sales, together with a more general review with the transfer of coverage to a new analyst. Benchmark will announce its Q3 results on 24 August and is likely to provide further financial guidance at that point.

## Conclusions

Based on our updated model, we suggest a fair value of Benchmark of **82p/share**, vs the previously published 88p/share. Updated forecasts are shown below (with prior numbers shown in parentheses).

Summary forecasts				
y/e 30 Sept, £m	FY20	FY21e	FY22e	FY23e
Sales	105.6	115.0 (126.7)	151.8 (162.2)	181.5 (197.3)
AEBITDA*	14.5	12.2 (16.6)	31.5 (35.2)	46.2 (54.5)
Net cash/(debt)	-37.6	-77.1 (-59.8)	-94.3(-83.1)	-101.0 (-84.0)
EV/Sales	4.1	4.2	3.3	2.8

Source: Company historic data/Equity Development forecasts \* Adjusted earnings before interest, tax, depreciation, amortisation, exceptional items, and acquisition related expenditure

### Company Data

EPIC	BMK
Price (last close)	60.5p
52 week High/Low	68p/36p
Market cap	£405.5m
Net debt (LBSD)	£56.5m
ED fair value/share	82p
Sector	Pharma & Biotech

### Share Price, p



### Description

Benchmark Holdings is a UK-headquartered company that provides advanced genetics, health and nutrition products to the global aquaculture industry. These products are designed to help customers manage productivity and animal health/welfare, while reducing environmental impact.

Benchmark has market leadership positions in the supply of salmon eggs (second) and in live feed (Artemia) used in shrimp farming.

### Robin Davison (Analyst)

0207 065 2690  
[emma@equitydevelopment.co.uk](mailto:emma@equitydevelopment.co.uk)

### Hannah Crowe

0207 065 2692  
[hannah@equitydevelopment.co.uk](mailto:hannah@equitydevelopment.co.uk)

Exhibit 1: Fish farming and sea lice primer	
What is the problem with sea lice?	The salmon louse ( <i>Lepeophtheirus salmonis</i> ) is one of a number of sea lice species that has evolved specifically to parasitise salmon, feeding on skin, mucus and blood. The parasite has become adapted to the low host densities in the wild with a vast reproductive capability, which is problematic given the fish densities in fish farming. Salmon farms offer an ideal environment for lice to breed, and infestations are a major problem for the industry. There are strict regulations covering lice monitoring and control in Norway to mitigate the impact on both farmed and indirectly wild salmon. Lice-affected fish cannot be sold due to the lesions the parasites produce, while infection lowers resistance to disease and can even kill juveniles. Sea lice are thought to cause an up to 5% loss in production.
What chemicals are currently used to treat sea lice outbreaks?	Lice infestation can be managed with mechanical or thermal methods, feeder fish or treatment with chemicals (therapeutants), the latter which can be either incorporated into feed or introduced by exposure in bath tanks on board well boats. Resistance has built up to most currently available chemical treatments.
What is Ectosan®?	Ectosan® Vet is an ectoparasiticide containing the neonicotinoid imidacloprid. Imidacloprid was first approved for agricultural use in 1994 and became widely used primarily as a result of its high margin of safety in mammals. However, severe limitations have since been placed on its use in Europe as a result of concerns, though scientifically controversial, about an unintended effect on pollinators (bees).
How is it administered?	Ectosan® is administered in bath tanks on well boats in the same way as other veterinary chemicals. The fish are immersed and then washed and then the medicinal water is transferred to the CleanTreat® boat for purification before being discharged back to the ocean.
What are well boats?	Well boats service the large floating holding pens and are a part of the existing infrastructure associated with the salmon farming industry. They are used to stock, feed, monitor, treat and harvest the fish.
What is CleanTreat® <sup>1</sup> ?	CleanTreat® is a water purification treatment system developed by Benchmark and installed on a separate boat. It consists of filtration and chemical/physical absorption processes designed to remove all organic matter (sea lice, faecal matter, egg strings and scales) and imidacloprid (which is reduced to below quantifiable levels). The purified water is ever discharged at sea and solid residues are incinerated on land. CleanTreat® is specifically tailored to remove Ectosan® Vet but could be adapted for other chemical treatments.
What is currently used to control sea lice?	Because of the problem of resistance, the Norwegian salmon industry has to rely on non-chemical alternatives such as thermal and mechanical approaches, which put stress on the fish (leading to reduced appetite and increased mortality) or cleaner fish, ie different fish species that are introduced to predate the lice. Farmers often have to use multiple different approaches in sequence to keep lice to acceptable levels.
When does treatment take place?	Sea lice infestation starts in the spring/summer months when the water temperature is higher. Norwegian legislation mandates maximum lice levels to reduce risk of infection of wild fish, which have less resistance.
How does Ectosan® compare with other approaches?	Ectosan® has higher efficacy (near 100%) at removal of lice and has been shown to be less stressful to the fish than mechanical or thermal treatments.
Will Ectosan® / CleanTreat® be sold separately?	Ectosan® will only be provided with CleanTreat® to ensure it is used in a closed loop with no discharge of active agent into the marine environment. Benchmark intends to market the product/technology in Norway before rolling out in other key salmon markets (Faroes, Scotland, Chile etc).
Is there a limit to residue in food?	The EU has set a maximum residue level (MRL) for imidacloprid of 600µg/kg in <i>Salmonidae</i> . However, the Commission is currently considering a subsequent European Parliament resolution to remove this MRL, The EP resolution is controversial because, if adopted, it would mean Parliament could overrule the <a href="#">expert review</a> at the European Medicines Agency. The EC may withdraw or redraft the legislation (or do nothing), although in the interim, the current MRL will remain in place.
Why is Ectosan® controversial?	Outdoor agricultural use of neonicotinoids is severely restricted in the EU because of a purported effect on bees (this is itself <a href="#">controversial</a> ). Use remains legal in greenhouses and for companion animals (and some EU member states have issued emergency derogations for outdoor use). Some anti-fish farming activist groups are campaigning against use in aquaculture on the grounds that any environmental exposure could have an adverse effect on marine ecology <sup>2</sup>
What is Benchmark's counter argument?	Ectosan® can only be used in a closed system, so there is no discharge to the marine environment. It has a lower environmental burden than alternative chemical treatments, where process water is discharged back into the sea. It also results in lower fish mortality than mechanical/thermal approaches (with better efficacy).
How is Benchmark's commercial position protected?	Benchmark holds a patent on the use of imidacloprid as a sea lice treatment. Its development programme has established the dosages and exposure required (note these do not have to be 100% lethal to the lice, only sufficient ensure the lice detach from the fish) and other protocols for safe use in salmon farming. Commercial protection is also derived from being the sole provider of CleanTreat®.

<sup>1</sup> CleanTreat® is a trademark of Benchmark Holdings.

<sup>2</sup> A 2019 article in [National Geographic](#) asserts agricultural use of imidacloprid on rice in Japan led to a collapse in commercial eel and smelt because the effect on plankton and benthos in the food chain.

## Benchmark cleared to launch BMK-08 in Norway

Benchmark has been cleared to launch BMK08 – now known as Ectosan® Vet - as a treatment for sea lice in farmed salmon, following approval by Norway’s Medicines Agency (NoMA) of the active agent, imidacloprid, for use with its process water treatment system CleanTreat®. Norway is the largest producer of farmed salmon in the world and will be the focus of Benchmark’s commercialisation efforts. This will be **first new sea lice veterinary treatment** introduced to the Norwegian salmon market **in over a decade**.

Ectosan® Vet will only be sold as a total solution delivered by Benchmark in conjunction with CleanTreat®, a process water treatment system, the first of its kind to be used in aquaculture. Benchmark has two CleanTreat® units ready for the launch - ships with the processing/filtration plant installed to remove the medicine from the used bath treatment water. It believes up to five may be required to service the Norwegian salmon farming industry, based on management assumptions about the peak share of sea lice treatments (c35%).

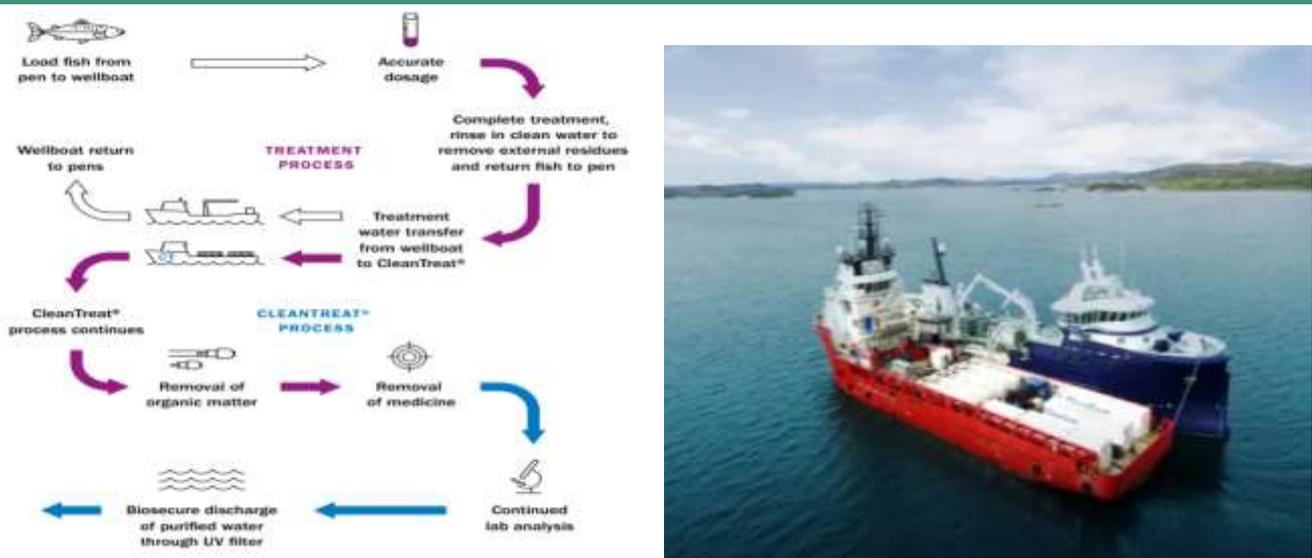
Benchmark states the final steps for commercialisation are the ratification of the MRL (Maximum Residue Limit) into Norwegian law and the approval of product labels by NoMA. MRL ratification into Norwegian regulation is a procedural step following EU legislation and is anticipated to complete in the next few weeks.

At this stage, the marketing authorisation (MA) does not fully include all the anticipated label claims on usage. Benchmark says it will also continue to develop the optimal product usage in conjunction with NoMA through applications for field trials and variations to the MA. Based on the MA that has been granted, Benchmark states that it expects Ectosan® Vet and CleanTreat® to be profitable from the outset.

Expectations for group performance in FY2021 and potential market for the new sea lice solution are unchanged, albeit with a slower ramp up. Based on the current label claims, Benchmark expects to achieve an Adjusted EBITDA margin of 25%-30% for Ectosan® Vet and CleanTreat®, which it expects will increase as new claims are granted. Peak sales in Norway are still guided at £50m.

A schematic of how Ectosan® and CleanTreat® operates is shown in Exhibit 2, together with a picture of the installed CleanTreat® unit onboard a vessel (in red) servicing the wellboat (in blue).

**Exhibit 2: Ectosan® /CleanTreat schematic (LHS), Well boat and CleanTreat® vessel (RHS)**



Source: Benchmark Holdings.

The CleanTreat® vessel includes chemists on its crew so that real time QA analysis can be performed. CleanTreat® also removes organic material from the treatment water including sea lice and sea lice egg

strings. The waste, including collected medicine, is removed and incinerated, and certification of the safe disposal of each batch will be issued. During the CleanTreat® process, the water is tested to ensure only purified water is returned to the sea. **A quality certificate** will be generated for every use of the system.

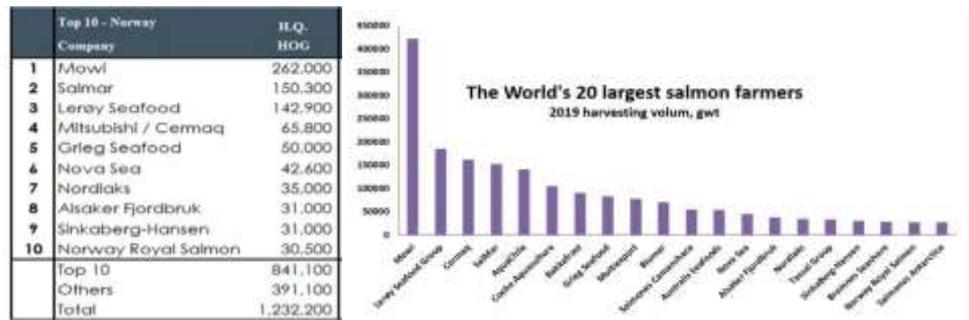
Benchmark has conducted extensive field trials with top salmon producers in Norway achieving 99% efficacy, high animal welfare and no environmental impact from the medicinal treatment. In recent years, Norwegian salmon farmers have had to switch from chemical to thermal/mechanical treatments to remove sea lice, as a result of resistance to existing approved treatments (known as chemotherapeutants). These approaches have **a lower efficacy** (and/or are only effective on lice in their moving stage) as well as a **greater impact on the environment**.

### Two customers signed up

Benchmark has its first customer agreements in place for CleanTreat® and can thus begin to start the delivery of the combined sea lice solution once the final steps have been completed in the next few weeks. The two customers are both described as large commercial salmon farming groups.

Norway's leading salmon producers, based on 2020 harvest, per the *Mowi Salmon Industry Handbook* (p48), are shown in Exhibit 3 below (note HOG = head-on gutted, an industry standard weight measure). The top 20 salmon farmers based on 2019 harvest gross weight, are shown in the graphic below right (*Source: Salmon Business*). (Note GWT = gutted weight equivalent, an industry standard).

### Exhibit 3: Norwegian and global salmon farmers



Notes: *Mowi Salmon Industry Handbook* and *Salmon Business*.

**The Norwegian company Mowi is the largest producer of farmed salmon worldwide**, as well as in Norway based on production of 262,000 GWT last year, according to data disclosed in its capital markets day. The second to fourth largest companies are also all Norwegian, respectively **Leroy Group**, **Cermaq** and **Salmar**. Benchmark has disclosed that the top Norwegian salmon companies have been involved in the field trials, so we assume that this top list of companies have evaluated Ectosan® / CleanTreat®.

### Financials & Valuation

We have updated our financial model to reflect a slower ramp in sales, together with a more general review with the transfer of coverage to a new analyst. We are not publishing detailed P&L, balance sheet and cash flow forecasts, except as shown on page 1, because a more comprehensive update is planned after the third quarter results due for release on 24 August. At that time, the company is expected to provide longer-term guidance on Ectosan® as well as the key salmon egg (genetics) and Artemia (nutrition) businesses.

**Our financial model now suggests a fair value of 82p/share, based on a WACC of 11% and long-term growth rate of 2.5%.** This is a small 7% reduction versus the previously published 88p/share.



## Contacts

**Hannah Crowe**

Direct: 0207 065 2692

Tel: 0207 065 2690

[hannah@equitydevelopment.co.uk](mailto:hannah@equitydevelopment.co.uk)

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Equity Development, 15 Eldon Street, London, EC2M 7LD

Contact: [info@equitydevelopment.co.uk](mailto:info@equitydevelopment.co.uk) | 020 7065 2690