Questions & Answers on licence application DIR 231 – Fermentation of plant material-derived sugars using genetically modified yeast for ethanol production

What is this application for?

Ethanol Technologies Pty Ltd (Ethtec) is requesting a licence to grow GM yeasts modified for ethanol production. The experiments would be conducted in Muswellbrook (Muswellbrook Shire Council), New South Wales. The GM yeasts would be cultured in closed fermentation vessels over five years.

What is yeast?

Yeasts are a diverse group of organisms that are commonly used in the food manufacturing industry. For example, baker's yeast is used for making bread and in the brewing industry. They are a popular tool in research and in the biotechnology industry and are increasingly studied for ethanol production. The yeast species included in this application are widespread in the environment and are not known to cause harm to people or the environment.

How have the GM yeasts been modified?

Modifications are made to yeast species *Saccharomyces cerevisiae* (also known as baker's yeast) and *Candida sojae* to enable production of ethanol from the sugar xylose. This is achieved by introducing or modifying genes from yeasts, anaerobic gut bacteria and plants that are able to use xylose to produce ethanol in *S. cerevisiae,* and genes from yeasts and anaerobic gut bacteria able to convert xylose into ethanol and xylitol in *C. sojae*.

What is the purpose of the trial?

The trial is to assess the performance of the GM yeasts in using sugars derived from plant material (lignocellulosic sugar hydrolysate) for large-scale ethanol fermentation.

What controls are proposed for this release?

The consultation Risk Assessment and Risk Management Plan (RARMP) prepared for this application concluded that the fermentation trial poses negligible risks to people or the environment. As this is a trial under limited and controlled conditions, a number of licence conditions have been proposed to restrict when and where the trial can take place, limit the size of the trial, and restrict the GM yeasts to the fermentation facility. There are conditions to contain the GM yeast by growing it in closed culture vessels, transferring liquids via closed lines, securely transport and store the GM yeasts, and inspect the fermentation facility at regular intervals for any leakage, as well as, at the end of the trial, ensuring that all GM yeasts are destroyed. Full details of the draft licence conditions are available in the consultation RARMP.

How can I comment on this application?

The full consultation RARMP and a summary of the RARMP for application DIR 231 are available on the OGTR website (search DIR 231), the consultation hub or via the contacts listed below. You are invited to submit your written comments (via the consultation hub or by email) on the consultation version of the RARMP, related to any risks to the health and safety of people or to the environment from the proposed release. Comments must be received by the close of the consultation period on **11 December 2026**.

What are the next steps in the evaluation process?

The RARMP will be finalised, taking into account submissions related to the protection of people or the environment. A de-identified summary of all comments received and consideration of those comments is included in the Appendices to the final RARMP. The finalised RARMP will inform the Regulator's decision on whether or not to issue a licence.

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