Dear Mr. d’Estreux:

Please refer to your New Drug Application (NDA) dated January 21, 2020, received January 21, 2020, and your amendments, submitted under Section 505(b) of the Federal Food, Drug, and Cosmetic Act (FDCA), for Xywav (calcium, magnesium, potassium, and sodium oxybates) oral solution.

This new drug application provides for the use of Xywav (calcium, magnesium, potassium, and sodium oxybates) oral solution, 0.5 g/mL, for treatment of cataplexy or excessive daytime sleepiness (EDS) in patients 7 years of age and older with narcolepsy.

**APPROVAL & LABELING**

We have completed our review of this application, as amended. It is approved, effective on the date of this letter, for use as recommended in the enclosed agreed-upon labeling.

**WAIVER OF ½ PAGE LENGTH REQUIREMENT FOR HIGHLIGHTS**

We are waiving the requirements of 21 CFR 201.57(d)(8) regarding the length of Highlights of Prescribing Information. This waiver applies to all future supplements containing revised labeling, unless we notify you otherwise.

**CONTENT OF LABELING**

As soon as possible, but no later than 14 days from the date of this letter, submit the content of labeling [21 CFR 314.50(l)] in structured product labeling (SPL) format using the FDA automated drug registration and listing system (eLIST), as described at FDA.gov.¹ Content of labeling must be identical to the enclosed labeling (text for the Prescribing Information, Instructions for Use, and Medication Guide) as well as annual reportable changes not included in the enclosed labeling. Information on submitting SPL

files using eLIST may be found in the guidance for industry SPL Standard for Content of Labeling Technical Qs and As.²

The SPL will be accessible via publicly available labeling repositories.

We request that the labeling approved today be available on your website within 10 days of receipt of this letter.

**CARTON AND CONTAINER LABELING**

Submit final printed carton and container labeling that are identical to the carton and container labeling submitted on June 19, 2020, as soon as they are available, but no more than 30 days after they are printed. Please submit these labeling electronically according to the guidance for industry Providing Regulatory Submissions in Electronic Format — Certain Human Pharmaceutical Product Applications and Related Submissions Using the eCTD Specifications. For administrative purposes, designate this submission "Final Printed Carton and Container Labeling for approved NDA 212690." Approval of this submission by FDA is not required before the labeling is used.

**ADVISORY COMMITTEE**

Your application for Xywav was not referred to an FDA advisory committee because there were no issues with this application that would benefit from advisory committee discussion.

**REQUIRED PEDIATRIC ASSESSMENTS**

Under the Pediatric Research Equity Act (PREA) (21 U.S.C. 355c), all applications for new active ingredients (which includes new salts and new fixed combinations), new indications, new dosage forms, new dosing regimens, or new routes of administration are required to contain an assessment of the safety and effectiveness of the product for the claimed indication in pediatric patients unless this requirement is waived, deferred, or inapplicable.

Because this drug product for this indication has an orphan drug designation, you are exempt from this requirement.

---

² We update guidances periodically. For the most recent version of a guidance, check the FDA Guidance Documents Database [https://www.fda.gov/RegulatoryInformation/Guidances/default.htm](https://www.fda.gov/RegulatoryInformation/Guidances/default.htm).
RISK EVALUATION AND MITIGATION STRATEGY REQUIREMENTS

Section 505-1 of the FDCA authorizes FDA to require the submission of a risk evaluation and mitigation strategy (REMS), if FDA determines that such a strategy is necessary to ensure that the benefits of the drug outweigh the risks.

In accordance with section 505-1 of FDCA, we have determined that a REMS is necessary for Xywav (calcium oxybate, magnesium oxybate, potassium oxybate, and sodium oxybate [gamma-hydroxybutyrate]) to ensure the benefits of the drug outweigh the risks of serious adverse outcomes resulting from inappropriate prescribing, misuse, abuse, and diversion.

Your proposed REMS must also include the following:

Elements to assure safe use: Pursuant to 505-1(f)(1), we have determined that Xywav (calcium oxybate, magnesium oxybate, potassium oxybate, and sodium oxybate [gamma-hydroxybutyrate]) can be approved only if elements necessary to assure safe use are required as part of the REMS to mitigate the risks of serious adverse outcomes resulting from inappropriate prescribing, misuse, abuse, and diversion listed in the labeling of the drug.

Your REMS includes the following elements to mitigate these risks:

- Healthcare providers have particular experience or training, or are specially certified
- Pharmacies, practitioners, or health care settings that dispense the drug are specially certified
- The drug is dispensed to patients with evidence or other documentation of safe-use conditions.

Implementation System: The REMS must include an implementation system to monitor, evaluate, and work to improve the implementation of the elements to assure safe use (outlined above) that require: pharmacies, practitioners, or health care settings that dispense the drug be specially certified and the drug be dispensed to patients with documentation of safe use conditions.

Your proposed REMS, submitted on January 21, 2020, amended and appended to this letter, is approved.

The REMS consists of elements to assure safe use, an implementation system, and a timetable for submission of assessments of the REMS.
Xywav will be subject to a REMS with Xyrem (NDA 021196) approved on July 21, 2020. Consequently, Xywav will be subject to the same REMS assessment plan as Xyrem, and will align with subsequent REMS assessments. The REMS will be known as the Xywav and Xyrem REMS.

Your REMS must be fully operational before you introduce Xywav into interstate commerce.

The XYWAV and XYREM REMS Assessment Plan must include, but is not limited to, the following information:

**Program Implementation and Operations**

1. REMS Program Implementation (1st assessment after approval only)
   a. Date of first commercial distribution of XYWAV
   b. Date when the XYWAV and XYREM REMS website became live and fully operational
   c. Date when the REMS Call Center was operationalized to include both XYWAV and XYREM.

2. REMS Enrollment Statistics (per reporting period and cumulatively)
   a. Patients:
      i. Number and percentage of newly enrolled patients stratified by age, geographic region (defined by US Census), and gender
      ii. Number and percentage of active patients enrolled (patients who received at least one shipment of XYWAV or XYREM during the reporting period) stratified by age, geographic region (defined by US Census), and gender
      iii. Number and percentage of patients who have discontinued XYWAV or XYREM after receiving at least one shipment of XYWAV or XYREM. Include demographics of discontinued patients and reasons for discontinuation.
      iv. Number and percentage of patients who transitioned from XYREM to XYWAV
      v. Number and percentage of patients who transitioned from XYWAV to XYREM.

   b. Healthcare Providers:
      i. Number and percentage of newly certified healthcare providers stratified by professional designation (i.e. MD, DO, PA, NP), medical specialty, and geographic region (defined by US Census)
      ii. Number and percentage of active certified healthcare providers (healthcare providers who have written at least one prescription for XYWAV or XYREM during the reporting period) stratified by professional designation (i.e. MD, DO, PA, NP), medical specialty, and geographic region (defined by US Census)
iii. Number of patients by current enrolled prescriber.

c. Certified Pharmacy
   i. If the Certified Pharmacy was decertified during the reporting period and reasons for decertification.

3. Utilization Data (per reporting period and cumulatively)
   a. Number and percentage of XYREM prescriptions (new and refills) dispensed
   b. Number and percentage of XYWAV prescriptions (new and refills) dispensed
   c. Number and percentage of XYREM bottles and shipments sent
   d. Number and percentage of XYWAV bottles and shipments sent.

4. REMS Program Operation and Performance Data (per reporting period and cumulatively)
   a. REMS Program Central Database Report
      i. Number and percentage of contacts by stakeholder type (e.g. patients, healthcare providers, pharmacy, other)
      ii. Summary of reasons for contacts (e.g., enrollment questions) by reporter (authorized representative, patient, healthcare provider, other)
      iii. Call center report with number of calls received and a summary of reasons for calls by stakeholder type
      iv. Summary of frequently asked questions by stakeholder type and topic
      v. Summary of any REMS-related problems identified and a description of any corrective actions taken
      vi. If the summary reason for the calls indicates a complaint, provide details on the nature of the complaint(s) and whether they indicate potential REMS burden or patient access issues
      vii. Summary of program or system problems and a description of any corrective actions taken.

5. REMS Program Compliance (per reporting period and cumulatively)
   a. Audits: Summary of audit activities including but not limited to:
      i. A copy of the audit plan for each audited stakeholder.
      ii. The number of audits expected, and the number of audits performed
      iii. The number and type of deficiencies noted
      iv. For those with deficiencies noted, report the status of corrective and preventative action (CAPA) proposed to address the deficiencies. The status to include completion status.
      v. For any that did not complete the CAPA within the timeframe specified in the audit plan, describe actions taken
      vi. Provide details on deviations for the CAPA proposed, including timelines, and mitigating steps to address the deviations
      vii. Confirm documentation of completion of training for relevant staff
      viii. Review of accumulative findings to identify any trends of potential repeat issues, and steps to be taken to address these findings
      ix. A summary report of the processes and procedures that are implemented to be in compliance with the REMS requirements.
b. A summary report of non-compliance, associated corrective and preventive actions (CAPA) plans, and the status of CAPA plans including but not limited to:
   i. A copy of the Non-Compliance Plan which addresses the criteria for non-compliance for each stakeholder, actions taken to address non-compliance for each event, and under what circumstances a stakeholder would be suspended or de-certified from the REMS
   ii. The number of instances of noncompliance accompanied by a description of each instance and the reason for the occurrence (if provided). For each instance of noncompliance, report the following information:
       1. The unique ID(s) of the stakeholder(s) associated with the noncompliance event or deviation to enable tracking over time
       2. The source of the noncompliance data
       3. The results of root cause analysis
       4. What action(s) were taken in response.

c. Healthcare Providers
   i. Number and percentage of certified prescribers who were disenrolled during the reporting period and reasons for disenrollment. Include if any prescribers were re-certified.
   ii. Number of disenrolled prescribers who were associated with a XYWAV and XYREM prescription and number of disenrolled prescribers associated with a XYWAV and XYREM shipment
   iii. Number and percentage of XYWAV prescriptions filled from a prescriber who was not enrolled.
   iv. Number and percentage of XYREM prescriptions filled from a prescriber who was not enrolled.

d. Certified Pharmacy
   i. Number and percentage of XYWAV prescriptions dispensed for more than a 30 days’ supply (first fill) or more than a 90 days’ supply (refills) and reasons
   ii. Number and percentage of XYREM prescriptions dispensed for more than a 30 days’ supply (first fill) or more than a 90 days’ supply (refills) and reasons
   iii. Number and percentage of XYWAV shipments lost in delivery (and unrecovered) with number of DEA 106 Forms and Risk Management Reports (RMRs) completed
   iv. Number and percentage of XYREM shipments lost in delivery (and unrecovered) with number of DEA 106 Forms and Risk Management Reports (RMRs) completed
   v. Number and percentage of initial XYWAV shipments sent to patients without completion of the XYWAV and XYREM REMS Patient Counseling Checklist.
   vi. Number and percentage of initial XYREM shipments sent to patients without completion of the XYWAV and XYREM REMS Patient Counseling Checklist.
e. Patients
i. Number and percentage of patients who were disenrolled from the program and reasons for disenrollment
ii. Number and percentage of patients associated with more than one prescriber during their therapy
iii. Number and percentage of patients prescribed a daily dose of XYWAV of >9 g
iv. Number and percentage of patients prescribed a daily dose of XYREM of >9 g
v. Number and percentage of patients with overlapping prescriptions (more than one active prescription shipped)
vi. Number and percentage of patients with concurrent XYWAV and XYREM prescriptions
vii. Number of duplicate patients detected by the Certified Pharmacy
viii. Number and percentage of duplicate patients who were shipped XYWAV or XYREM under more than one name or identifier
ix. Number and percentage of patients who were shipped XYWAV or XYREM after being disenrolled
x. Number and percentage of patients who requested an early refill of XYWAV and reason for the request
   1) Number and percentage of requests approved
   2) Number and percentage of requests denied by the prescriber
   3) Number and percentage of requests denied by the Certified Pharmacy
   4) Number and percentage of patients with multiple requests for early refills.
xi. Number and percentage of patients who requested an early refill of XYREM and reason for request
   1) Number and percentage of requests approved
   2) Number and percentage of requests denied by the prescriber
   3) Number and percentage of requests denied by the Certified Pharmacy
   4) Number and percentage of patients with multiple requests for early refills.

Safe Use Behaviors
6. Pharmacy Notifications (per reporting period and cumulatively, for both XYWAV and XYREM)
   i. A summary of the notifications by pharmacies to prescribers for both XYWAV and XYREM. For each of the following situations, include the number and percentage of notifications, number of unique patients, the outcome of the pharmacy notification (e.g. counseled patient, discussed with prescriber and prescriber’s designee) and outcome of XYWAV and XYREM prescription disposition (e.g. prescriber approved shipment,
prescriber requested shipment hold, prescriber denied shipment, pharmacy approved shipment):
1) Use with sedative-hypnotics indicated for sleep (e.g. zolpidem, eszopiclone, zaleplon, ramelteon)
2) Use with other concomitant CNS-depressant medications (opioid analgesics, benzodiazepines, sedating antidepressants or antipsychotics, sedating anti-epileptics, sedating antihistamines, general anesthetics, muscle relaxants, opioid analgesics, or illicit CNS depressants)
3) Patient report of alcohol use
4) Patient report of diagnosis of sleep apnea
5) Patient report of diagnosis of asthma, COPD, or other conditions affecting breathing
6) Suspected abuse, misuse, or diversion
7) Alerts regarding potential abuse, misuse, or diversion on the patient profiles
8) Prescription error
9) Early refill requests.

7. Risk Management Reports (RMRs) (per reporting period and cumulatively, for both XYWAV and XYREM)
   i. Number and percentage of RMRs submitted
   ii. Number and percentage of unique patients with a RMR
   iii. Number and percentage of unique patients with multiple RMRs
   iv. Number and percentage of alerts generated from RMRs
   v. Number and percentage of RMRs generated from early refill requests
   vi. Number and percentage of RMRs generated for other reasons (list reasons)
   vii. Number and percentage of prescriber-related RMRs
   viii. Number and percentage of RMRs that included an adverse event.

8. REMS Program Patient Counseling Checklist (per reporting period and cumulatively, for both XYWAV and XYREM)
   i. Summary table for both XYWAV and XYREM from REMS Program Patient Counseling Checklists of the number and percentage of patients taking the following concomitant medications and who subsequently received at least one shipment of drug:
      1) Sedative hypnotics indicated for sleep (e.g. zolpidem, eszopiclone, zaleplon, ramelteon)
      2) Alcohol
      3) Other potentially interacting agents:
         • Benzodiazepines
         • Sedating antidepressants or antipsychotics, sedating anti-epileptics, and sedating antihistamines
         • General anesthetics
         • Muscle relaxants
         • Opioid analgesics
• Divalproex sodium or other valproate drug (e.g., valproic acid)
• Illicit CNS depressants (e.g., heroin or gamma-hydroxybutyrate [GHB]).

ii. Summary tables for both XYWAV and XYREM from REMS Program Patient Counseling Checklists of the number and percentage of patients who have been diagnosed with the following conditions and who subsequently received at least one shipment of drug:
   1) Sleep apnea
   2) Asthma, COPD, or other conditions affecting the respiratory system.

Health Outcomes and/or Surrogates of Health Outcomes

9. Pharmacovigilance/surveillance (per reporting period)
a. Separate summary tables for XYWAV and XYREM of the number of reports of serious adverse events. The summary tables will include the following data fields (CIOMS II line listings): date, report ID, report type, notifier, age, gender, start and stop date, dose, frequency, onset date, system organ class, outcome, and causality. All tables should include an overall narrative summary of the adverse events and data fields reported.
   i. All cases of death
      1) Number, percentage, and type of RMRs, notifications, and alerts associated with any reported deaths.
   ii. All outcomes of death, emergency department visits (when admitted to hospital), or hospitalizations resulting from or associated with the following:
      1) Use with concurrent sedative hypnotics and alcohol. Provide a breakdown of concomitant sedative hypnotics usage (ex. zolpidem=6%, eszopiclone=3%)
      2) Intentional misuse
      3) Abuse
      4) Overdose
      5) Medication error
   iii. Cases of sexual abuse
   iv. Proportion of discontinued patients who were associated with a report of a serious adverse event, including death.

Knowledge

10. Knowledge, Attitude, and Behavior (KAB) Surveys of Patients, Caregivers, and Healthcare Providers (to be submitted annually)
a. Assessment of patients'/caregivers' and healthcare providers' understanding of the following:
   i. The risk of significant CNS and respiratory depression associated with XYWAV and XYREM even at recommended doses
   ii. The contraindicated uses of XYWAV and XYREM

U.S. Food and Drug Administration
Silver Spring, MD 20993
www.fda.gov

Reference ID: 4644289
iii. The potential for abuse, misuse, and overdose associated with XYWAV and XYREM
iv. The safe use, handling, and storage of XYWAV and XYREM
v. The XYWAV and XYREM REMS Program requirements.

11. Knowledge, Attitude, and Behavior (KAB) Surveys of Pharmacists (Beginning with the 5-year assessment and annually thereafter)
   a. Assessment of pharmacists' understanding of the following:
      i. The risk of significant CNS and respiratory depression associated with XYWAV and XYREM even at recommended doses
      ii. The contraindicated uses of XYWAV and XYREM
      iii. The potential for abuse, misuse, and overdose associated with XYWAV and XYREM
      iv. The safe use, handling, and storage of XYWAV and XYREM
      v. The XYWAV and XYREM REMS Program requirements.

12. Certified Pharmacy knowledge assessments (per reporting period and cumulatively)
   a. Number of pharmacy staff who completed post-training knowledge assessments including method of completion and the number of attempts needed to complete.
      i. Provide a breakdown of scores within Module A and B
   b. Summary of the most frequently missed post-training knowledge assessment questions
   c. Summary of potential comprehension or perception issues identified with the post-training knowledge assessment by module
   d. Number of pharmacy staff who did not pass the knowledge assessments.
   e. Summary of potential comprehension or perception issues identified with the post-training knowledge assessment by module
   f. Number of pharmacy staff who did not pass the knowledge assessments.

13. The requirements for assessments of an approved REMS under section 505-1 (g)(3) include with respect to each goal included in the strategy, an assessment of the extent to which the approved strategy, including each element of the strategy, is meeting the goal or whether one or more such goals or such elements should be modified.

We remind you that in addition to the REMS assessments submitted according to the timetable in the approved REMS, you must include an adequate rationale to support a proposed REMS modification for the addition, modification, or removal of any goal or element of the REMS, as described in section 505-1(g)(4) of the FDCA.

We also remind you that you must submit a REMS assessment when you submit a supplemental application for a new indication for use as described in section 505-1(g)(2)(A). This assessment should include:

   a) An evaluation of how the benefit-risk profile will or will not change with the new indication;
b) A determination of the implications of a change in the benefit-risk profile for the current REMS;

c) *If the new, proposed indication for use introduces unexpected risks:* A description of those risks and an evaluation of whether those risks can be appropriately managed with the currently approved REMS.

d) *If a REMS assessment was submitted in the 18 months prior to submission of the supplemental application for a new indication for use:* A statement about whether the REMS was meeting its goals at the time of the last assessment and if any modifications of the REMS have been proposed since that assessment.

e) *If a REMS assessment has not been submitted in the 18 months prior to submission of the supplemental application for a new indication for use:* Provision of as many of the currently listed assessment plan items as is feasible.

f) *If you propose a REMS modification based on a change in the benefit-risk profile or because of the new indication of use, submit an adequate rationale to support the modification, including:* Provision of the reason(s) why the proposed REMS modification is necessary, the potential effect on the serious risk(s) for which the REMS was required, on patient access to the drug, and/or on the burden on the health care delivery system; and other appropriate evidence or data to support the proposed change. Additionally, include any changes to the assessment plan necessary to assess the proposed modified REMS. *If you are not proposing a REMS modification,* provide a rationale for why the REMS does not need to be modified.

If the assessment instruments and methodology for your REMS assessments are not included in the REMS supporting document, or if you propose changes to the submitted assessment instruments or methodology, you should update the REMS supporting document to include specific assessment instrument and methodology information at least 90 days before the assessments will be conducted. Updates to the REMS supporting document may be included in a new document that references previous REMS supporting document submission(s) for unchanged portions. Alternatively, updates may be made by modifying the complete previous REMS supporting document, with all changes marked and highlighted. Prominently identify the submission containing the assessment instruments and methodology with the following wording in bold capital letters at the top of the first page of the submission:

**NDA 212690 REMS ASSESSMENT METHODOLOGY**
(insert concise description of content in bold capital letters, e.g., ASSESSMENT METHODOLOGY, PROTOCOL, SURVEY METHODOLOGIES, AUDIT PLAN, DRUG USE STUDY)

U.S. Food and Drug Administration
Silver Spring, MD 20993
[www.fda.gov](http://www.fda.gov)
An authorized generic drug under this NDA must have an approved REMS prior to marketing. Should you decide to market, sell, or distribute an authorized generic drug under this NDA, contact us to discuss what will be required in the authorized generic drug REMS submission.

We remind you that section 505-1(f)(8) of FDCA prohibits holders of an approved covered application with elements to assure safe use from using any element to block or delay approval of an application under section 505(b)(2) or (j). A violation of this provision in 505-1(f) could result in enforcement action.

Prominently identify any submission containing the REMS assessments or proposed modifications of the REMS with the following wording in bold capital letters at the top of the first page of the submission as appropriate:

**NDA 212690 REMS ASSESSMENT**

**NEW SUPPLEMENT FOR NDA 212690/S-000**

**CHANGES BEING EFFECTED IN 30 DAYS**

**PROPOSED MINOR REMS MODIFICATION**

*or*

**NEW SUPPLEMENT FOR NDA 212690/S-000**

**PRIOR APPROVAL SUPPLEMENT**

**PROPOSED MAJOR REMS MODIFICATION**

*or*

**NEW SUPPLEMENT FOR NDA 212690/S-000**

**PRIOR APPROVAL SUPPLEMENT**

**PROPOSED REMS MODIFICATIONS DUE TO SAFETY LABELING CHANGES SUBMITTED IN SUPPLEMENT XXX**

*or*

**NEW SUPPLEMENT (NEW INDICATION FOR USE)**

**FOR NDA 212690/S-000**

**REMS ASSESSMENT**

**PROPOSED REMS MODIFICATION (if included)**

Should you choose to submit a REMS revision, prominently identify the submission containing the REMS revisions with the following wording in bold capital letters at the top of the first page of the submission:

**REMS REVISION FOR NDA 212690**

U.S. Food and Drug Administration
Silver Spring, MD 20993
www.fda.gov
To facilitate review of your submission, we request that you submit your proposed modified REMS and other REMS-related materials in Microsoft Word format. If certain documents, such as enrollment forms, are only in PDF format, they may be submitted as such, but the preference is to include as many as possible in Word format.

**SUBMISSION OF REMS DOCUMENT IN SPL FORMAT**

FDA can accept the REMS document in Structured Product Labeling (SPL) format. If you intend to submit the REMS document in SPL format, as soon as possible, but no later than 14 days from the date of this letter, submit the REMS document in SPL format using the FDA automated drug registration and listing system (eLIST).

For more information on submitting REMS in SPL format, please email FDAREMSwebsite@fda.hhs.gov.

**PROMOTIONAL MATERIALS**

You may request advisory comments on proposed introductory advertising and promotional labeling. For information about submitting promotional materials, see the final guidance for industry *Providing Regulatory Submissions in Electronic and Non-Electronic Format—Promotional Labeling and Advertising Materials for Human Prescription Drugs.*

As required under 21 CFR 314.81(b)(3)(i), you must submit final promotional materials, and the Prescribing Information, at the time of initial dissemination or publication, accompanied by a Form FDA 2253. Form FDA 2253 is available at FDA.gov. Information and Instructions for completing the form can be found at FDA.gov.

**REPORTING REQUIREMENTS**

We remind you that you must comply with reporting requirements for an approved NDA (21 CFR 314.80 and 314.81).

If you have any questions, contact Vandna Kishore, Regulatory Project Manager, at Vandna.Kishore@fda.hhs.gov.

---

3 For the most recent version of a guidance, check the FDA guidance web page at https://www.fda.gov/media/128163/download.  

U.S. Food and Drug Administration  
Silver Spring, MD 20993  
www.fda.gov
ENCLOSURES:

- Content of Labeling
  - Prescribing Information
  - Medication Guide
  - Instructions for Use
- REMS

Sincerely,

{See appended electronic signature page}

Eric Bastings, MD
Director (Acting)
Division of Neurology 1
Office of Neuroscience
Center for Drug Evaluation and Research
This is a representation of an electronic record that was signed electronically. Following this are manifestations of any and all electronic signatures for this electronic record.

/s/

ERIC P BASTINGS
07/21/2020 05:40:10 PM