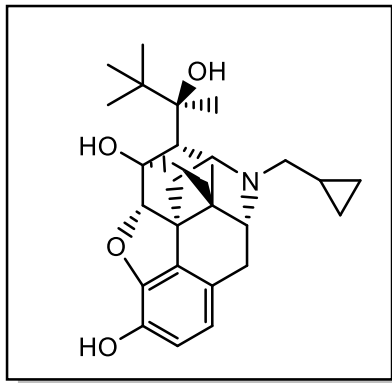


## DRAFT CERTIFICATE OF ANALYSIS

|                     |                                                                                                                                  |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>Product Name</b> | <b>Buprenorphine EP Impurity E</b>                                                                                               |
| <b>Synonyms</b>     | (2S)-2-[17-(cyclopropylmethyl)-4,5alpha-epoxy-3,6-dihydroxy-6alpha,14-ethano-14alpha-morphinan-7alpha-yl]-3,3-dimethylbutan-2-ol |

| Analytical Method   |                                         | Molecular Structure                                                                |
|---------------------|-----------------------------------------|------------------------------------------------------------------------------------|
| Batch No.           |                                         |  |
| CAS No.             | 130668-48-3                             |                                                                                    |
| Molecular Formula   | C28H39NO4                               |                                                                                    |
| Molecular Weight    | 453.61                                  |                                                                                    |
| Shipping Conditions | To be shipped under ambient temperature |                                                                                    |
| Storage Conditions  | For long term storage, keep at 2-8°C    |                                                                                    |
| Origin of Product   | Synthetic                               |                                                                                    |
| Catalogue No.       |                                         |                                                                                    |
| Directions For Use  | Do not dry, use as it as                |                                                                                    |
| Solubility          | DMSO                                    |                                                                                    |

| S.No. | Test                                                 | Results  | Specification                 |
|-------|------------------------------------------------------|----------|-------------------------------|
| 1     | Description                                          |          |                               |
| 2     | Purity<br>(By HPLC area %)                           |          | NLT 95.00                     |
| 3     | LOD<br>(Loss of solvent and water upto 105°C by TGA) |          |                               |
| 4     | Potency<br>(mass balance basis)                      |          |                               |
| 5     | IR                                                   | Complies | Should complies with str.     |
| 6     | MASS                                                 | Complies | Should complies with mol. wt. |
| 7     | NMR                                                  | Complies | Should complies with str.     |

|                      |                                                                                                                                                            |                    |  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--|
| <b>Analysis Date</b> |                                                                                                                                                            | <b>Retest Date</b> |  |
| <b>Concerns</b>      | All characterization data attached herewith for your review and any concern to be taken within 60 days from dispatch of material for better understanding. |                    |  |

**Material is for Laboratory testing purpose only, not for human consumption.**

Disclaimer: Supplied Raw Material, Intermediates, Impurity or metabolite of API are covered by patents are not offered to the countries where valid Patent Law is in force. However, it is the buyer's responsibility to verify position in the country of intended use. The final responsibility lies with customer.

|                        |  |                        |  |                        |  |
|------------------------|--|------------------------|--|------------------------|--|
| <b>Prepared By</b>     |  | <b>Reviewed by</b>     |  | <b>Approved by</b>     |  |
| <b>Sign.&amp; Date</b> |  | <b>Sign.&amp; Date</b> |  | <b>Sign.&amp; Date</b> |  |

**Deals in:** Impurity Standards | Technology Development | CRAMS | IP Services

*CbS: Customer by Satisfaction*

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