# SUMMARY OF PRODUCT CHARACTERISTICS

## 1. NAME OF THE MEDICINAL PRODUCT

**EASCOF-DM**(Dextromethorphan Hydrobromide Oral Solution USP 15mg)

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

**Composition**:

Each 5 ml Contains:

Dextromethorphan Hydrobromide USP 15 mg

Colour: Sunset Yellow

Excipient(s) with known effect Each 5 ml contains Sucrose, Sodium Benzoate, Sorbitol and Propylene Glycol.

For the full list of excipients, see section 6.1

## 3. PHARMACEUTICAL FORM

Liquid Oral Solution.

## 4. CLINICAL PARTICULARS

### 4.1 Therapeutic indications

Eascof –DM is indicated as an antitussive, for the relief of persistent, dry, irritating cough.

### 4.2 Posology and method of administration

Adults and Children aged 12 years and over:

5 ml syrup (15 mg dextromethorphan) 4 times a day.

Maximum daily dose: 20 ml syrup (60 mg dextromethorphan)

Children under 12 years:

EASCOF-DM is contraindicated in children under the age of 12 years.

The Elderly (over 65 years)

As for adults above.

Hepatic/renal dysfunction

Due to the extensive hepatic metabolism of dextromethorphan, caution should be exercised in the presence of

moderate to severe hepatic impairment (see Pharmacokinetics).

Do not exceed the stated dose.

Keep out of the reach and sight of children.

**4.3 Contraindications**

Eascof-DM is contraindicated in individuals with known hypersensitivity to the product or any of its components.

Eascof-DM is contraindicated in individuals who are taking, or have taken, monoamine oxidase inhibitors within the preceding two weeks. The concomitant use of a dextromethorphan-containing product and monoamine oxidase inhibitors, can occasionally result in symptoms such as hyperpyrexia, hallucinations, gross excitation or coma.

Dextromethorphan, in common with other centrally acting antitussive agents, should not be given to subjects in, or at risk of developing respiratory failure.

Not to be used in children under the age of 12 years.

**4.4 Special warnings and precautions for use**

Eascof-DM should not be administered to patients with chronic or persistent cough, such as occurs with asthma, or where cough is accompanied by excessive secretions, unless directed by a physician.

There have been no specific studies of Eascof-DM in renal or hepatic dysfunction. Due to the extensive hepatic metabolism of dextromethorphan, caution should be exercised in the presence of hepatic impairment.

**4.5 Interaction with other medicinal products and other forms of interaction**

Dextromethorphan should not be used concurrently in patients taking monoamine oxidase inhibitors (MAOIs) or within 14 days of stopping treatment with MAOIs as there is a risk of serotonin syndrome (pyrexia, hallucinations, gross excitation or coma, hypertension, arrhythmias).

CYP2D6 inhibitors

Dextromethorphan is metabolized by CYP2D6 and has an extensive first-pass metabolism. Concomitant use of potent CYP2D6 enzyme inhibitors can increase the dextromethorphan concentrations in the body to levels multifold higher than normal. This increases the patient's risk for toxic effects of dextromethorphan (agitation, confusion, tremor, insomnia, diarrhoea and respiratory depression) and development of serotonin syndrome. Potent CYP2D6

enzyme inhibitors include SSRIs such as fluoxetine and paroxetine, quinidine and terbinafine. In concomitant use with quinidine, plasma concentrations of dextromethorphan have increased up to 20-fold, which has increased the CNS adverse effects of the agent. Amiodarone, flecainide and propafenone, sertraline, bupropion, methadone, cinacalcet, haloperidol, perphenazine and thioridazine also have similar effects on the metabolism of dextromethorphan. If concomitant use of CYP2D6 inhibitors and dextromethorphan is necessary, the patient should be monitored and the dextromethorphan dose may need to be reduced.

Dextromethorphan might exhibit additive CNS depressant effects when co-administered with alcohol, antihistamines, psychotropics, and other CNS depressant drugs.

**4.6 Pregnancy and lactation**

Although dextromethorphan has been in widespread use for many years without apparent ill consequence, there is insufficient information on the effects of administration during human pregnancy.

**4.7 Effects on ability to drive and use machines**

This medicine can impair cognitive function and can affect a patient's ability to drive safely. This class of medicine is in the list of drugs included in regulations under 5a of the Road Traffic Act 1988. When taking this medicine, patients should be told:

• The medicine is likely to affect your ability to drive

• Do not drive until you know how the medicine affects you

**4.8 Undesirable effects**

Side effects attributed to dextromethorphan are uncommon; occasionally dizziness, nausea, vomiting, or gastrointestinal disturbance may occur.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicinal product is important. It allows continued monitoring of the benefit/risk balance of the medicinal product. Healthcare professionals are asked to report any suspected adverse reactions via

EFDA yellow Card Scheme, online at https://primaryreporting.who-umc.org/ET or toll free call 8482 to Ethiopian food and drug authority (EFDA).

### 4.9 Overdose

Signs and symptoms

The effects of acute toxicity from Eascof-DM overdose may include drowsiness, lethargy, nystagmus, ataxia, respiratory depression, nausea, vomiting, hyperactivity.

Treatment

Treatment should be symptomatic and supportive. Gastric lavage may be of use. Naloxone has been used successfully as a specific antagonist to dextromethorphan toxicity in children.

## 5. PHARMACOLOGICAL PROPERTIES

### 5.1 Pharmacodynamics properties

Pharmacotherapeutic group: Cough Suppressant, Opium alkaloids and derivatives
ATC code: R05DA09

Mode of action

Dextromethorphan is a non-opioid antitussive drug. It exerts its antitussive activity by acting on the cough centre in the medulla oblongata, raising the threshold for the cough reflex. A single oral dose of 10-20 mg dextromethorphan produces its antitussive action within 1 hour and lasts for at least 4 hours.

### 5.2 Pharmacokinetics:

**Absorption**

Dextromethorphan is well absorbed from the gut following oral administration. Due to individual differences in the metabolism of dextromethorphan, pharmacokinetic values are highly variable. After the administration of a 20 mg dose of dextromethorphan to healthy volunteers, the Cmax varied from < 1 mg/l to 8 mg/l, occurring within 2.5 hours of administration.

**Distribution**

Due to extensive pre-systemic metabolism by the liver, detailed analysis of the distribution of orally administered dextromethorphan is not possible.

Metabolism and Elimination

Dextromethorphan undergoes rapid and extensive first-pass metabolism in the liver after oral administration.

Genetically controlled O-demethylation is the main determinant of dextromethorphan pharmacokinetics in human volunteers. It appears that there are distinct phenotypes for this oxidation process resulting in highly variable pharmacokinetics between subjects. Unmetabolised dextromethorphan, together with the three demethylated morphinan metabolites dextrophan (also known as 3-hydroxy-N-methylmorphinan) 3-hydroxymorphinan and 3- methoxymorphinan have been identified as conjugated products in the urine. Dextrorphan, which also has antitussive action, is the main metabolite.

**5.3 Preclinical safety data**

General toxicology

Acute oral toxicity studies conducted with Dextromethorphan report the following LD50 values (mg/kg): mouse, 210 and rat, 116. Acute subcutaneous toxicity with Dextromethorphan reports the LD50 value (mg/kg): mouse, 112. Acute intravenous toxicity with Dextromethorphan reports the LD50 value (mg/kg): rat, 16.3.

Repeat dose toxicity studies conducted in rats for 13 weeks duration at doses up to 100 mg/kg and 27 weeks at 10 mg/kg, and of 14 weeks in dogs by oral gavage at doses up to 4 mg/kg on five days per week. The only effect recorded was of reduced body weight gain in the rat 13-week study at the highest dose.

Genetic Toxicology

Dextromethorphan hydrobromide was negative in the bacterial reverse mutation assay (Ames test). Dextromethorphan 39 mg/kg is reported to be negative in *in-vivo* mouse micronucleus test and comet assay. Dextromethorphan was reported to be negative in *in vitro* chromosome aberration assay tested up to 200 μg/ml.

Carcinogenicity

There are no known reports of animal carcinogenicity studies for Dextromethorphan. The overall weight of evidence for Dextromethorphan and its structural analogues, support the

conclusion that this class of phenanthrene-based chemicals, and Dextromethorphan, in particular, are not genotoxic in vitro or in vivo

Teratogenicity

There was no association between dextromethorphan and malformations.

Fertility

Mating, gestation, fertility, littering and lactation were studied in rats at doses up to 50 mg/kg and no adverse effects were found.

## 6. PHARMACEUTICAL PARTICULARS

### 6.1 List of excipient(s)

Menthol

Sodium benzoate

Sucrose

Methyl Paraben

Citric acid (monohydrate)

Sodium citrate

Saccharine sodium

Sorbitol solution 70% (Non-crystallising)

Propylene glycol

Colour sunset yellow FCF

Flavour Pineapple Ali

Purified water

### 6.2 Incompatibilities

Not applicable.

### 6.3 Shelf life

2 years.

### 6.4 Special precautions for storage

Store in a dry place, below $30^{o}$ C. protect from light. Keep out of reach of children

### 6.5 Nature and contents of container

Eascof-DM is supplied as 100ml glass bottle with measuring cup.

**6.6 Special precautions for disposal and other handling**

No special requirements.

Any unused product or waste material should be disposed of in accordance with local requirements.

**7. Marketing Authorisation Holder**

**Cachet Pharmaceuticals Pvt. Ltd**

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**8. Marketing Authorisation Number(s)**

05619/07623/REN/202

**9. Date of First Authorisation/Renewal of the Authorisation**

Date of first authorisation: 30/06/2011

Date of latest renewal: 01/02/2026

**10. Date of Revision of the Text:**

05/07/2023