



# HALAL WATCH WORLD



THE GLOBAL STANDARD IN HALAL CERTIFICATION



## PRODUCT & FACILITY REPORT

### P2 Science

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# COMPANY BACKGROUND

**Halal Watch World LLC** is a halal certification limited liability corporation based in the state of New York, and has operated in the certification industry since 1990. HWW is an organization that stands upon the trust of the Muslim public, and believes that it is imperative that their trust never be jeopardized. We maintain standards to the highest degree of scrutiny and perform regular audits for the protection of our constituents.

Halal Watch World understands that halal certification is a communal obligation ( فرض (كفاية), meaning, at least one person of the community must uphold it. If no one takes up this responsibility, the entire community bears a burden of sin. Therefore, we must be extra diligent with this effort. We realize the seriousness of the matter and understand the dire consequences of not filling this duty to the fullest capacity. God explains this to us in the Holy Quran by His statement:

***“And say not concerning that which your tongue says falsely: 'This is Halal and this is Haram,' so as to invent lies against Allah. Verily, those who invent lies against Allah will never prosper...A passing brief enjoyment (will be theirs), but they will have a painful torment.”***

*[Al Quran] 16:116-117*

HWW ensures to the best of its ability a high level of authenticity is upheld. This allows them to gain the trust of the Muslim community, and garner strong relationships with companies who produce, process, and distribute halal products at all levels. By this, they are able to offer halal producing company's guidance and consultation on the direction of their processes and products, while ensuring that Islamic dietary standards are always maintained and monitored. Muslims can use this information in order to make well informed decisions about what they choose to eat.

**Legal Filings:** Halal Watch World holds registered trademark number 4728733, and Department of State (New York) number 4814343. Halal Watch World is also a registered halal certifying organization with The Department of Agriculture and Markets of New York State (See supporting documentation).

We begin in the name of God SWT



# CERTIFICATION CONSIDERATIONS

There are 4 main factors taken into consideration when determining the halal status of a product:

## **1. Is the product/ingredient Halal Aslan (by default)?**

If the product is Halal by default, then the location it is harvested, produced, or manufactured in, even if done so by a non-Muslim, is not necessary to inspect.

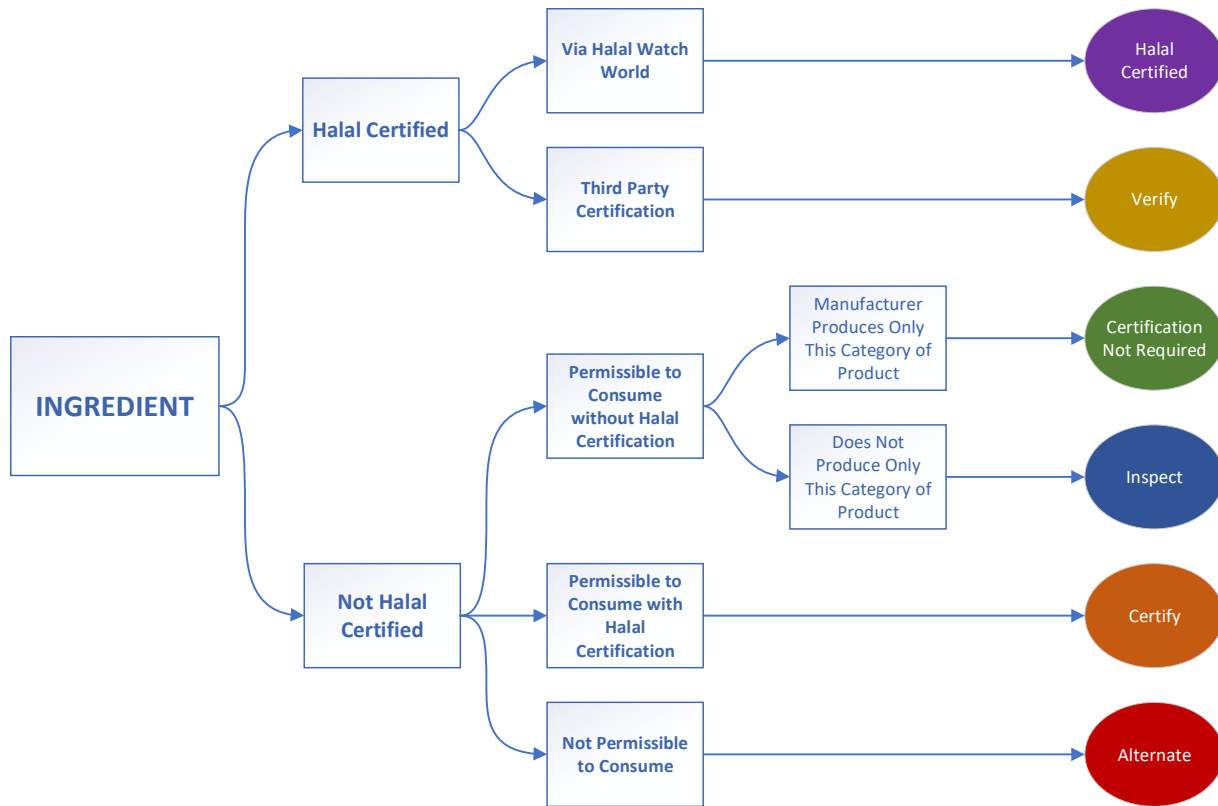
## **2. Is the product/ingredient Halal certified via another organization?**

If another organization certifies the product as Halal, then it is incumbent upon us to perform a *tahqeeq* (verification) certification of the establishment. We must be able to ascertain that the certifying body is competent and capable of determining the status of such products. In the event that we are unable to gain this information, our organization must inspect the location of production before certifying.

## **3. Are there any impermissible ingredients being produced in the same facility?**

As is the norm in Muslim minority societies, manufacturers produce both Halal and Non-Halal products in the same facilities. If other non-Halal items are produced in the same facility, an inspection may be required. In the event that an inspection is not possible, Halal Watch World reserves the right to utilize other forms of off-site audit procedures requiring documentation and the like in order to determine the facilities halal production capabilities. It is generally required for us to determine that the manufacturer prevents the following:

1. Product Contamination
2. Cleaning Method fulfils Islamic requirements
3. Separate storage locations between Halal and non-Halal products, or preventative measures are in place to remove the possibility of mislabelling
4. Halal certified label is visible either on the box or the product
5. Halal certificate from source meat supplier is valid



Regarding contamination, products cannot be cooked upon or within the same utensils without proper cleansing. This means that any liquid substance that interacts with non-halal products becomes contaminated. This includes oil, and other wet cooking surfaces. Thus, if a vat of oil is used to cook non-halal products (which is considered as filth), it cannot be used to cook Halal products without contaminating it.

#### **4. Are there any contents in the product that contain impermissible ingredients?**

We refer to the list of impermissible consumables on the previous pages. If the product under audit is found to contain any of the ingredients on the ban list, these products cannot be considered as halal.

# Client Details: P2 Science

## FACILITY PROFILE

We are a venture-backed, renewable specialty chemicals company, co-founded by Professor Paul Anastas, Head of the Center for Green Chemistry and Green Engineering at Yale University. We opened our first commercial manufacturing plant in CT in September 2018.

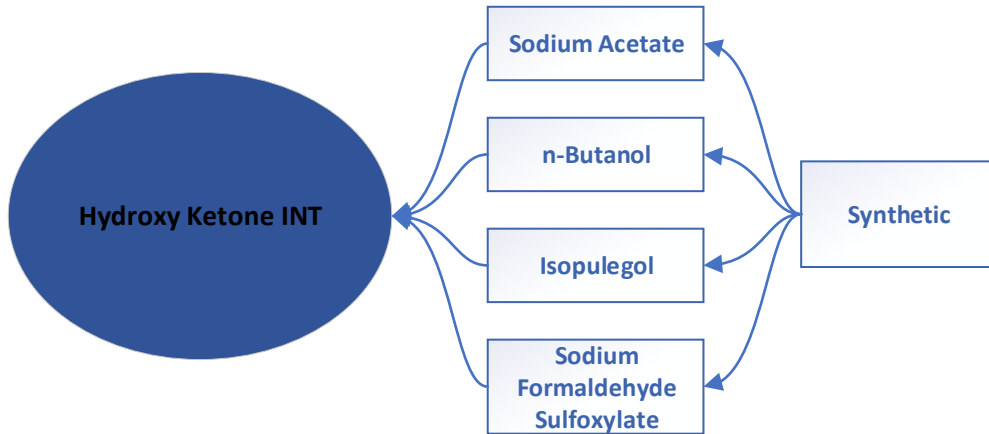
<b>Client Details</b>	
<b>GENERAL INFORMATION</b>	
Area of site:	11000
Number of employees:	6
Number of working shift:	1
Operating Hours:	7am - 7pm
Work Days:	Mon - Fri
Total Number of Products:	6
Total Number of Ingredients:	24
<b>FACILITY OVERVIEW</b>	
Risk Assessment	Medium Risk
Facility Kind	HPF - Partially
Contaminants	Yes
Tools	Dedicated
Storage	Segregated
<b>SUPPLIER OVERVIEW</b>	
Supplier1:	Morton Salt
Supplier2:	BASF
Supplier3:	Macco Organiques Inc.
Supplier4:	Royce Global
Supplier5:	Symrise
Supplier6:	Eastman Chemical Company
Supplier7:	Takasago
<b>PRODUCT OVERVIEW</b>	
Product Type:	Chemicals
Exposure:	Goods are opened in facility
Animal Byproducts:	No
Alcohol (Ethyl):	Yes
Fillers/Additives (Finished product:)	No

## PRODUCT INFORMATION

Product name	Client product #	HWW Product ID	Ingredients List
Hydroxy Ketone INT		MR1024-CH01	Isopulegol, n-Butanol, Sodium Formaldehyde Sulfoxylate, Sodium Acetate
Hydroxy Ketone 75		MR1024-CH02	Isopulegol, n-Butanol, Sodium Formaldehyde Sulfoxylate, Sodium Acetate
Hydroxy Ketone 85		MR1024-CH03	Isopulegol, n-Butanol, Sodium Formaldehyde Sulfoxylate, Sodium Acetate
Hydroxymelonal		MR1024-CH04	Dihydromyrcenol, DI Water, Ozone, Sodium Formaldehyde Sulfoxylate, Sodium Chloride, Sodium Acetate
Oxoisopulegol INT		MR1024-CH05	Isopulegol, n-Butanol, Thiodiglycol, Sodium Acetate
Oxoisopulegol 85		MR1024-CH06	Isopulegol, n-Butanol, Thiodiglycol, Sodium Acetate

## PRODUCT PROFILE

### Hydroxy Ketone INT



### Hydroxy Ketone INT

In organic chemistry a hydroxy ketone (often referred to simply as a ketol) is a functional group consisting of a ketone flanked by a hydroxyl group. In the two main classes, the hydroxyl group can be placed in the alpha position (an alpha-hydroxy ketone  $\text{RCR}'(\text{OH})(\text{CO})\text{R}$ ) or in the beta position (a beta-hydroxy ketone,  $\text{RCR}'(\text{OH})\text{CR}_2(\text{CO})\text{R}$ ).

### Ingredient Status

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate,  $\text{CH}_3\text{COONa}$ , also abbreviated NaOAc, is the sodium salt of acetic acid.<sup>1</sup>

n-Butanol: – **Halal** (Shartan) n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula  $\text{C}_4\text{H}_9\text{OH}$ .<sup>2</sup>

Concerns – It has up to 6 times the inebriating effect of ethyl alcohol, but it is not being consumed therefore, it is not problematic from that perspective.

<sup>1</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

<sup>2</sup> <https://en.wikipedia.org/wiki/N-Butanol>

Isopulegol: – **Halal** (Aslan) (-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from Mentha pulegium and other essential oil.<sup>3</sup>

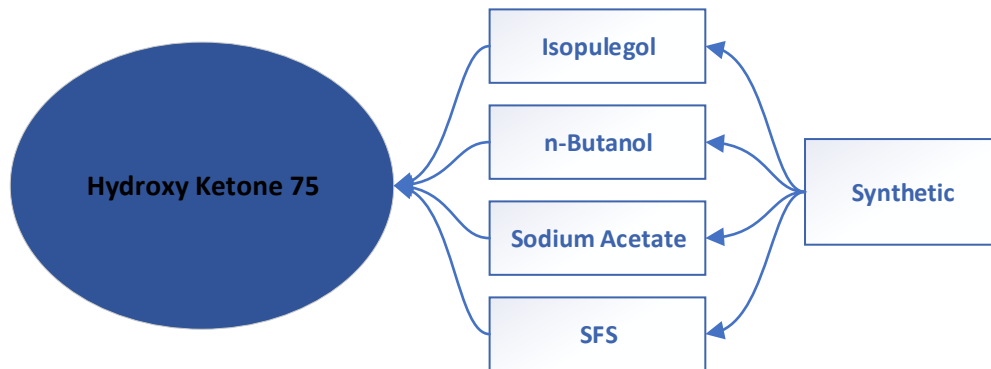
Sodium Formaldehyde Sulfoxylate: – **Halal** (Aslan) Rongalite is a chemical compound with the molecular formula  $\text{Na}+\text{HOCH}_2\text{SO}_2^-$ .<sup>4</sup>

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<sup>3</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/l-Isopulegol>

<sup>4</sup> [https://en.wikipedia.org/wiki/Rongalite#Synthesis\\_and\\_reactions](https://en.wikipedia.org/wiki/Rongalite#Synthesis_and_reactions)

## Hydroxy Ketone 75



## Hydroxy Ketone 75

In organic chemistry a hydroxy ketone (often referred to simply as a ketol) is a functional group consisting of a ketone flanked by a hydroxyl group. In the two main classes, the hydroxyl group can be placed in the alpha position (an alpha-hydroxy ketone  $\text{RCR}'(\text{OH})(\text{CO})\text{R}$ ) or in the beta position (a beta-hydroxy ketone,  $\text{RCR}'(\text{OH})\text{CR}_2(\text{CO})\text{R}$ ).

### Ingredient Status

Isopulegol: – **Halal** (Aslan) (-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from *Mentha pulegium* and other essential oil.<sup>5</sup>

n-Butanol: – **Halal** (Shartan) n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula  $\text{C}_4\text{H}_9\text{OH}$ .<sup>6</sup>

Concerns – It has up to 6 times the inebriating effect of ethyl alcohol, but it is not being consumed therefore, it is not problematic from that perspective.

<sup>5</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/l-Isopulegol>

<sup>6</sup> <https://en.wikipedia.org/wiki/N-Butanol>

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate,  $\text{CH}_3\text{COONa}$ , also abbreviated  $\text{NaOAc}$ , is the sodium salt of acetic acid.<sup>7</sup>

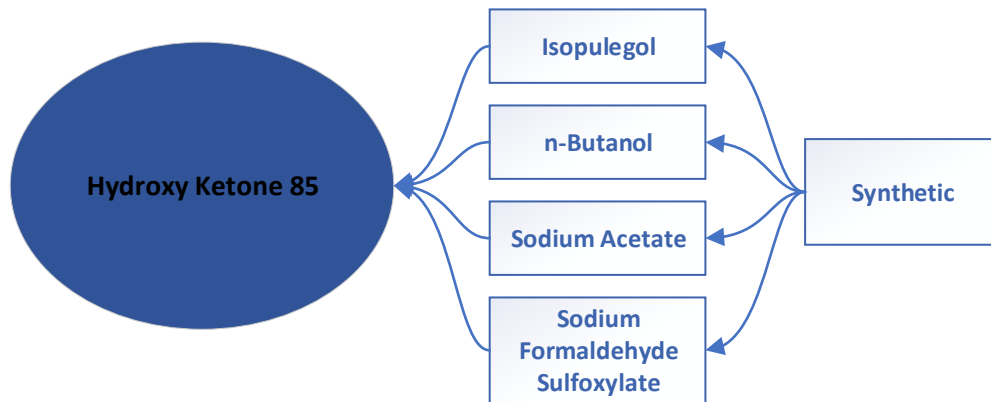
Sodium Formaldehyde Sulfoxylate: – **Halal** (Aslan) Rongalite is a chemical compound with the molecular formula  $\text{Na}^+\text{HOCH}_2\text{SO}_2^-$ .<sup>8</sup>

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<sup>7</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

<sup>8</sup> [https://en.wikipedia.org/wiki/Rongalite#Synthesis\\_and\\_reactions](https://en.wikipedia.org/wiki/Rongalite#Synthesis_and_reactions)

## Hydroxy Ketone 85



## Hydroxy Ketone 85

### Ingredient Status

Isopulegol: – **Halal** (Aslan) (-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from Mentha pulegium and other essential oil.<sup>9</sup>

n-Butanol: – **Halal** (Shartan) n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula C<sub>4</sub>H<sub>9</sub>OH.<sup>10</sup>

Concerns – It has up to 6 times the inebriating effect of ethyl alcohol, but it is not being consumed therefore, it is not problematic from that perspective. It's also

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate, CH<sub>3</sub>COONa, also abbreviated NaOAc, is the sodium salt of acetic acid.<sup>11</sup>

<sup>9</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/l-Isopulegol>

<sup>10</sup> <https://en.wikipedia.org/wiki/N-Butanol>

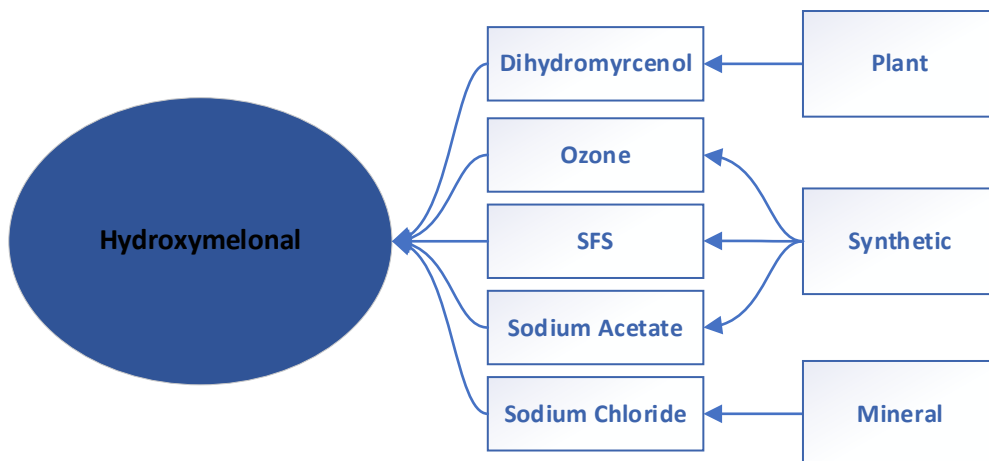
<sup>11</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

Sodium Formaldehyde Sulfoxylate: – **Halal** (Aslan) Rongalite is a chemical compound with the molecular formula  $\text{Na}^+\text{HOCH}_2\text{SO}_2^-$ .<sup>12</sup>

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<sup>12</sup> [https://en.wikipedia.org/wiki/Rongalite#Synthesis\\_and\\_reactions](https://en.wikipedia.org/wiki/Rongalite#Synthesis_and_reactions)

## Hydroxymelonal



## Hydroxymelonal

### Ingredient Status

Dihydromyrcenol: – **Halal** (Aslan) 2,6-Dimethyl-7-octen-2-ol. Dihydromyrcenol by Symrise acts as a fragrance ingredient. It is a terpene-based product which is derived from pine trees.<sup>13</sup>

Ozone: – **Halal** (Aslan) When ozone is generated industrially it is produced either with cold plasma (also called dielectric barrier discharge method), corona discharge or UV-light.<sup>14</sup>

Sodium Formaldehyde Sulfoxylate: – **Halal** (Aslan) Rongalite is a chemical compound with the molecular formula  $\text{Na}^+\text{HOCH}_2\text{SO}_2^-$ .<sup>15</sup>

<sup>13</sup> <https://cosmetics.specialchem.com/product/i-symrise-symrise-dihydromyrcenol>

<sup>14</sup> <https://www.primozone.com/technology/production-techniques/#:~:text=In%20the%20atmosphere%20ozone%20is,corona%20discharge%20or%20UV%2Dlight.>

<sup>15</sup> [https://en.wikipedia.org/wiki/Rongalite#Synthesis\\_and\\_reactions](https://en.wikipedia.org/wiki/Rongalite#Synthesis_and_reactions)

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate, CH<sub>3</sub>COONa, also abbreviated NaOAc, is the sodium salt of acetic acid.<sup>16</sup>

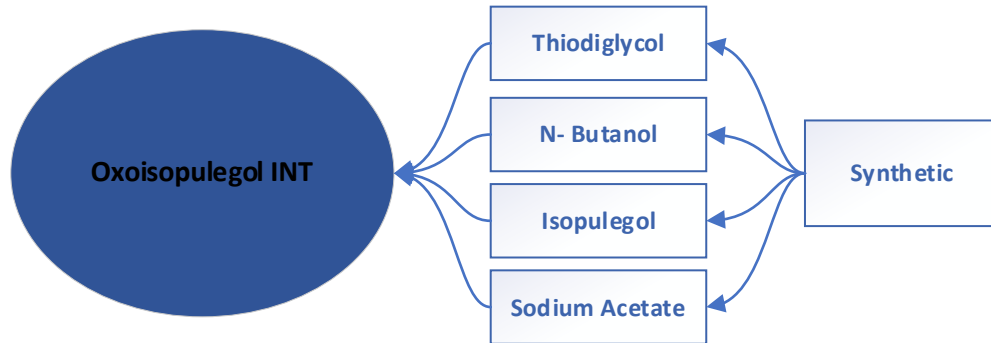
Sodium Chloride: – **Halal** (Aslan) Sodium chloride, commonly known as salt, is an ionic compound with the chemical formula NaCl, representing a 1:1 ratio of sodium and chloride ions.<sup>17</sup>

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<sup>16</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

<sup>17</sup> [https://en.wikipedia.org/wiki/Sodium\\_chloride](https://en.wikipedia.org/wiki/Sodium_chloride)

## Oxoisopulegol INT



## Oxoisopulegol INT

### Ingredient Status

Thiodiglycol: – **Halal** (Aslan) Thiodiglycol is a hydrolysis product of mustard gas, an alkylating agent, with antineoplastic activity.<sup>18</sup>

n-Butanol: – **Halal** (Shartan) n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula C<sub>4</sub>H<sub>9</sub>OH.<sup>19</sup>

Concerns – It has up to 6 times the inebriating effect of ethyl alcohol, but it is not being consumed therefore, it is not problematic from that perspective.

Isopulegol: – **Halal** (Aslan) (-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from Mentha pulegium and other essential oil.<sup>20</sup>

<sup>18</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/5447#section=Pharmacology-and-Biochemistry>

<sup>19</sup> <https://en.wikipedia.org/wiki/N-Butanol>

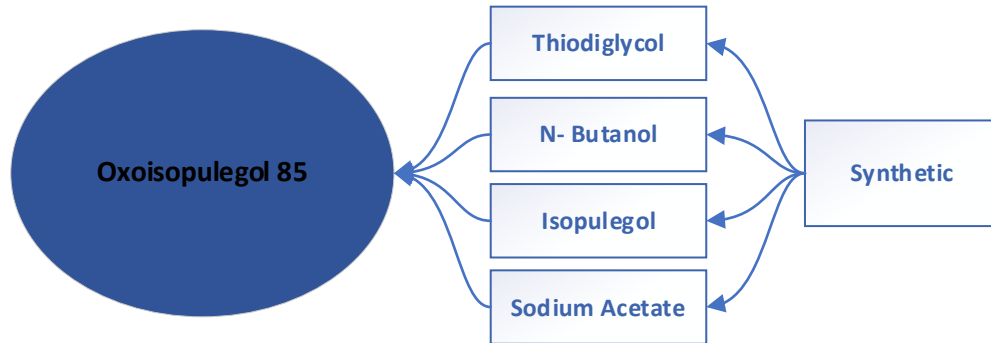
<sup>20</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/I-Isopulegol>

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate, CH<sub>3</sub>COONa, also abbreviated NaOAc, is the sodium salt of acetic acid.<sup>21</sup>

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<sup>21</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

## Oxoisopulegol 85



## Oxoisopulegol 85

### Ingredient Status

Thiodiglycol: – **Halal** (Aslan) Thiodiglycol is a hydrolysis product of mustard gas, an alkylating agent, with antineoplastic activity.<sup>22</sup>

n-Butanol: – **Halal** (Shartan) n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula C<sub>4</sub>H<sub>9</sub>OH.<sup>23</sup>

Concerns – It has up to 6 times the inebriating effect of ethyl alcohol, but it is not being consumed therefore, it is not problematic from that perspective.

Isopulegol: – **Halal** (Aslan) (-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from Mentha pulegium and other essential oil.<sup>24</sup>

<sup>22</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/5447#section=Pharmacology-and-Biochemistry>

<sup>23</sup> <https://en.wikipedia.org/wiki/N-Butanol>

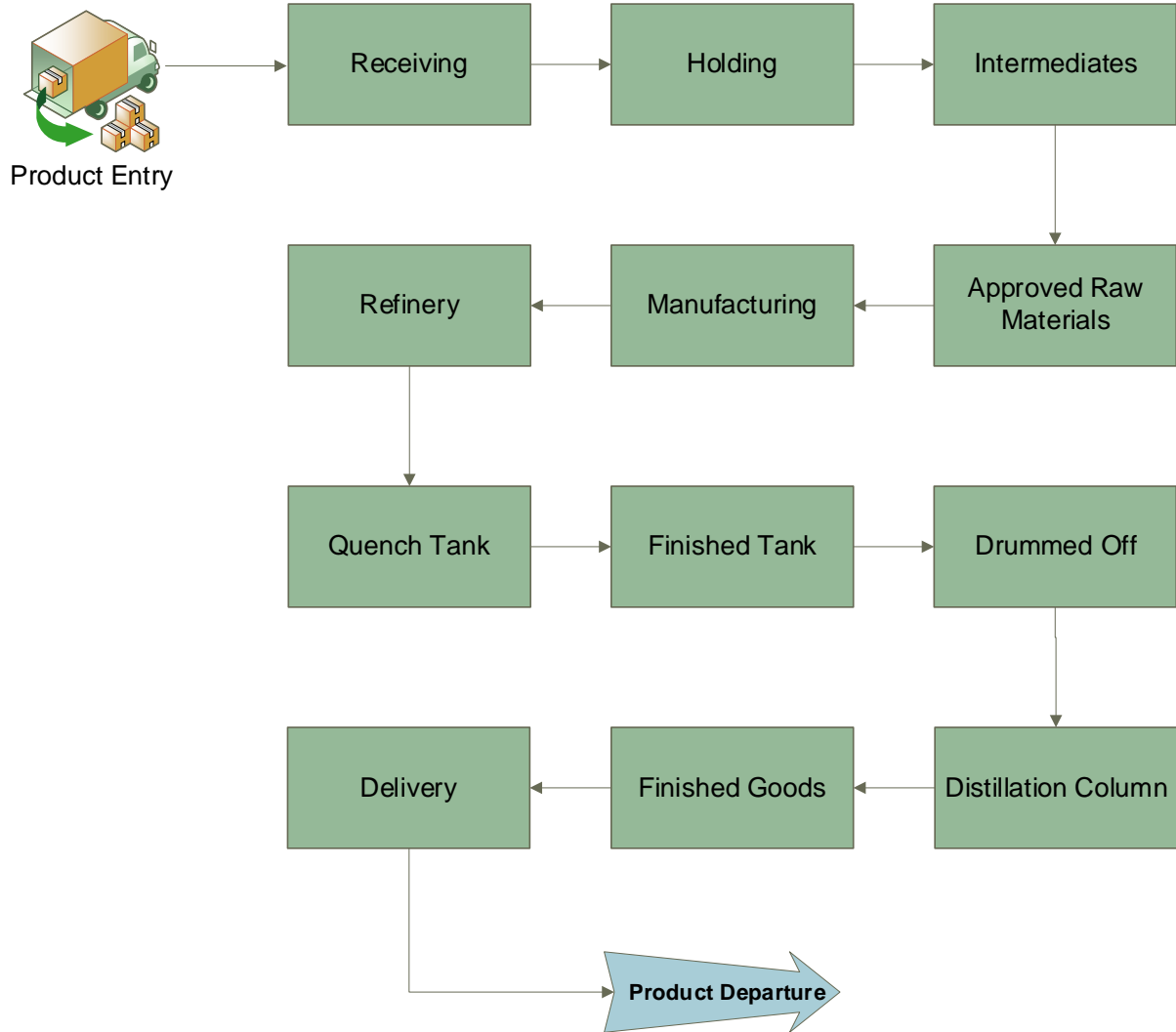
<sup>24</sup> <https://pubchem.ncbi.nlm.nih.gov/compound/I-Isopulegol>

Sodium Acetate Anhydrous: – **Halal** (Aslan) Sodium acetate, CH<sub>3</sub>COONa, also abbreviated NaOAc, is the sodium salt of acetic acid.<sup>25</sup>

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<sup>25</sup> [https://en.wikipedia.org/wiki/Sodium\\_acetate](https://en.wikipedia.org/wiki/Sodium_acetate)

## PROCESSING OVERVIEW



## **CLEANING METHOD**

Description: Charge 50kg of 1-butanol to the vessel then ensure vessel 400V1 is isolated from the reactor system, 202V1 and 400V2. Circulate through the 400V1 system for 15 minutes. Test 1-butanol by GC. If results show the 400V1 system does not contain 99.9% 1-butanol, drain the 400V1 system and charge another 50kg of 1-butanol, recirculating through the system for 15 minutes. Repeat until the system is 99.9% 1-butanol

Charge 50kg of 1-butanol to the vessel then ensure vessel 400V2 is isolated from 400V1. Circulate through the 400V2 system for 15 minutes. Test 1-butanol by GC. If results show the 400V1 system does not contain 99.9% 1-butanol, drain the 400V2 system and charge another 50kg of 1-butanol, recirculating through the system for 15 minutes. Repeat until the system is 99.9% 1-butanol. Print clean gc result and attach

Charge 50kg of 1-butanol to the vessel then ensure vessel 500V1 is isolated from 400V2. Circulate through the 500V1 system for 15 minutes. Test 1-butanol by GC. If results show the 500V1 system does not contain 99.9% 1-butanol, drain the 500V1 system and charge another 50kg of 1-butanol, recirculating through the system for 15 minutes. Repeat until the system is 99.9% 1-butanol. Print clean gc result and attach

Frequency: N/A

## PRODUCT & SUPPLIER ASSESSMENT

### Morton Salt

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Sodium Chloride	Sodium chloride is the chemical name for salt.		Pass	No known intoxicating effect	Halal Aslan

### Produced Internally

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Ozone	When ozone is generated industrially it is produced either with cold plasma (also called dielectric barrier discharge method), corona discharge or UV-light.		Pass	No known intoxicating effect	Halal Aslan

### Symrise

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Dihydromyrcenol	2,6-Dimethyl-7-octen-2-ol. Dihydromyrcenol by Symrise acts as a fragrance ingredient. It is a terpene-based product which is derived from pine trees.		Pass	No known intoxicating effect	Halal Aslan

### Takasago

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Coolact P(COOL-A-IPG)	(-)-Isopulegol is found in cornmint. (-)-Isopulegol is isolated from Mentha pulegium and other essential oil.		Pass	No known intoxicating effect	Halal Aslan

### BASF

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Thiodiglycol	Thiodiglycol is a hydrolysis product of mustard gas, an alkylating agent, with antineoplastic activity.		Pass		Halal Aslan

## Eastman Chemical Company

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Butanol-n	n-Butanol is a primary alcohol with a 4-carbon structure and the chemical formula C <sub>4</sub> H <sub>9</sub> OH.	Intoxicating	Pass	Halal if below 0.5% as an ingredient, although it is an alcohol.	Halal Shartan

## Macco Organiques Inc.

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Sodium Acetate Anhydrous	Sodium acetate, CH <sub>3</sub> COONa, also abbreviated NaOAc, is the sodium salt of acetic acid.		Pass	No known intoxicating effect	Halal Aslan

## Royce Global

Raw Material	Ingredient description	Concerns	Pass/Fail	Reason	Status Recommendation
Sodium Formaldehyde Sulfoxylate	Rongalite is a chemical compound with the molecular formula Na <sup>+</sup> HOCH <sub>2</sub> SO <sub>2</sub> <sup>-</sup> .		Pass	No known intoxicating effect	Halal Aslan

## TESTING METHOD

The following tests are performed for the production facility: Purity (GC's, Testing for residual N-Butanol), PH, Viscosity, color, residual polymers.

# CONCLUSION

Client was cooperative, transparent and compliant with on-site access, and all relevant documentation requests. Inspector was able to identify all critical Halal integrity control points. All source materials have been analysed during this audit and review. P2 Science's manufacturing facility has been deemed to be conducive to maintaining the integrity of a Halal product.

**Based upon this information, the review team hereby certifies both the facility, and all products mentioned in this report to be Halal.**

## REVIEWED BY:



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**Mln. Masood ismail**  
**QA Manager**  
Technical Review

## APPROVED BY:



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**Sh. Mansoor Rafiq Umar**  
**Vice President**



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**Imam W.D. Umar**  
**President**