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# THE USE OF SUNLIGHT FOR SUSPENSION OF SALT WATER WITH CONVERGEN CONVERSION LENS

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#### Abstract

Salt in the main need for humans, In the process of shrinkage of salt products become the expected result is always increased because in the islands of Madura who have high salt income can be utilized. Light focus can be used through convex convex lens to increase sea water shrinkage so as to accelerate evaporation as well Get shrinkage of salt water salt raw material quickly. From observations made in May - June 2017 can be obtained data focusing light through convex convex lens is by focusing the sun on convex lens that is directed at sea water, so it can shrink the water faster. Acquisition of water depreciation using the tool obtained 95,000 cc /95 liters, while 47.000 cc / 47 liters obtained from without tools. From this study it can be concluded that the value obtained yields a positive value, where the use of the tool from the volume of each volume filled 100 liters with a ratio of 1: 1 from the analysis obtained from using a tool faster 56% using tools with upper 14322.90 Of the 99% confidence interval received. So from the shrinkage using a faster tool, the depreciation of sea salt raw materials with convergent convex lenses can be applied directly as a technological reasoning.

*Keywords:*Light focusing, Convergent convex lens, Increased depreciation of seawater.

### 1. INTRODUCTION

Humans as living creatures in fulfilling life that can not be separated from the surrounding life. The human environment provides as a resource that can be utilized to meet the needs of his life. The environment of every region on the surface of this earth has its own characteristics. It is influenced by supporting physical factors such as climate, geology, hydrology, marfology, soil and vegetation (Nursid Sumaatmadja, 1989: 26).

Salt as we know it everyday can be defined as a collection of chemical compounds whose main part is sodium chloride (NaCl) with impurity agents consisting of CaSO4, MgSO4.MgCl2 and others. Salt can be obtained in three ways, namely the evaporation of sea water with Ultraviolet Rays, rock salt mining (rock salt) and from brine wells. Different minerals salt in the composition, depending on the location, but usually contains more than 95% NaCl in the problem that occurs is in the manufacture of a variety of salts in the manufacturing process. while the goal in the process of shrinkage of water making raw materials of salt in order to obtain results that will be more leverage.

# 2. METHODOLOGY

This research was conducted on the land located in the city of Pamekasan Madura, this experiment is done using convex convex lenses by measuring with the aim to determine the effect of focusing sunlight with convex convex lens to the process of salt water depreciation of salt raw materials.

Convergent convex lenses are designed to be used as a heating medium on land, wherein convergent convex lens use generates hot spots on the aluminum trunk media as a medium that will result in a shrinkage that will occur in the tidal water. To collect this parallel beam of convergent convex lenses is directed at one point to collect the coming light, so that the collected light occurs the refraction of light at one point.

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### 3. RESULT AND DISCUSSION

In collecting parallel beams of aluminum bars, converging convex lenses are directed at one point. So that the collected light occurs the refraction of light at a point.the aluminum will heat up so that the shrinkage process will occur on the aluminum rod produced by the rod by converging convex lenses.



Figure 1 Convex convergent lenses

In this experiment combined with measurement of water height in the experimental field, as a basis for obtaining data from the depreciation that occurred. In the measurement is to determine the depreciation that occurred from the experiment.



Figure 2 Decreased water in the field

Data from this research is obtained through observation conducted by researchers in the period of May - June 2017. Where all the information is done by interviewing directly to farmers and experiments in practice with researchers in Pamekasan Madura.

Days	Volume	High water	Parameter/hours	High Depreciation	
to	amount	Tingii water			
1	100 L	10 cm	7 hour	2 cm	
2	80 L	8 cm	7 hour	1 cm	
3	70 L	7 cm	7 hour	2 cm	
4	50 L	5 cm	7 hour	2 cm	
5	30 L	3 cm	7 hour	0,5 cm	
6	25 L	2,5 cm	7hour	0,5 cm	

Table 1 Data During Observation Using the Tool

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Hari Ke 0	Volume Amount	High Water	Parameter/hour	High Depreciation
1	100 L	10 cm	7 hour	1 cm
2	90 L	9 cm	7 hour	0,5 cm
3	85 L	8,5 cm	7 hour	1 cm
4	75 L	7,5 cm	7 hour	1 cm
5	65 L	6,5 cm	7 hour	0,2 cm
6	63 L	6,2 cm	7 hour	0,3 cm
7	60 L	6 cm	7hour	0,5 cm
8	55 L	5,5 cm	7 hour	0,2 cm
7	20 L	2 cm	7hour	1 cm
8	10 L	1 cm	7hour	0,5 cm

 Table 2 Data During Observation Without Tool

In observations made in two experimental results, 8 observations were made with 100 liters of water showing a water height of 10 cm in the experimental field. So the measurement per 10 liters of water is defined to get 1 cm in measurement. The use of convex convex lenses measured on the first day can shrink water by 2 cm while without a 1 cm tool with an experiment for 7 hours, as well as experiments for the next day.

From the results of the analysis of the reduction of water by using tools and without tools, there is an opposite comparison, so that the resulting volume of the remaining volume between experiments using the tool and without the tool obtained the graph of the image 3:



Figure 3 graph of tool usage and without tools



Figure 4 Convergent Convex Lens Experiment on Land

The result of measurement result is recorded the value of water depreciation occurs from 6 tools that spread when simulated with the result of data processing with t test (independent T-test). Then note also the decreasing rate of cc / ml depreciation. From both differences in the rate of decline, the water and the shrinkage are so simple experimental calculations that produce the standard values that occur in the observation.

From the results of the analysis of water reduction by using the tool and without the tool, there is an opposite comparison, the amount of volume remaining between the two experiments expirime produce a difference in depreciation. This study uses the statistical test independence test on spss which get significant shrinkage 0.14 meaning that if significant more than> 0,1, the data have the same variant. However if the significant value is more <0.1, the data has a different variant. So it is assumed from the data 0.14> 0.1 has the same variant. When having the same test, the hypothesis tested is the value of sig (2tailed) having a significant value of 0.050. Which means of the two variants that have inequality is 0.050. Thus the proportion of different experiments is 0.56 of the output t test (independent samples test) in Table 3.

Table 3 T Test Independent Test Samples Test										
		Levene's Test for Equality of								
		Variance				t-test for Equality of Mean			T . 1 C	
		F	Sig.	t	df	Sig.(2- tailed)	Mean Difference	Std.Error Difference	99% Confide the Di Lower	fference Upper
Volume air dalamsatuan cc/ml	Equal variances assumed	7.862	.014	2.146	14	.050	6000.00000	2795.88345	2322.90534	14322.90534
	Equal variances not assumed			2.146	10.432	.056	6000.00000	2795.88345	2779.30637	14779.30637

After doing data processing for Hypothesis proposed in this research is happened difference to depreciation by using tool, by seeing there is difference of average 0.56. Given the differences in cumulative averages are different between using the tool and without using the tool. Consistently and 99% confidance, the convergent convex lens shrinking experienced a difference of almost 50% of the results of the 0.50% abrasive tool usage analysis in effecting the shrinkage without the tool, while the highest 2ig tailage test of 0.56. This data used in this study is normally distributed and acceptable.

Researchers argue and based on the literature that has been explained it can be

taken average that significant (2-tailed) in the column t-test is greater when compared with the value of 5% significant level, which means that the results obtained from the analysis differ from the use tools and without tools with significant 0.56 of 99% confidance.

#### 4. CONCLUSION

Based on the research that has been done and the result of the research, it can be concluded on the observation of convex lens convex shrinkage of salt water of salt raw

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material done on 8 times experiment with each field filled volume 100 L with ratio 1: 1 obtained analysis showing 0, 56 of the two variants that have an inequality in the output t test (independent samples test). So the result of the analysis can be concluded the effect of solar focusing through convex convex lens using tool and without tool faster 56% using 14322.90 from 99% tool with upper confidence interval received on the effect of salt material depreciation. water raw

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