



U.S. Department of Transportation
**Pipeline and Hazardous Materials
Safety Administration**

1200 New Jersey Ave, S.E.
Washington, D.C. 20590

Mr. Robert E. Sever
VP of Engineering
TRG Inc.
4150 Carr Lane Ct.
St. Louis, MO 63119

MAY 19 2009

Ref. No. 09-0114

Dear Mr. Sever:

This is in response to your letters of May 11 and 15, 2009, and our meeting on May 14, concerning colors used by your company to print Oxygen labels onto the sidewalls of cylinders for medical oxygen.

You submitted a number of printed samples of various shades of yellow for the Oxygen label for our review, to determine conformance with the color standards for labels set forth in the Hazardous Materials Regulations (HMR; 49 CFR 171-180) in Subpart E and Appendix A of Part 172. You also submitted an Engineering Report analyzing, by spectrophotometer, 16 samples printed on a cylinder to determine which shade of yellow, if any, would match the central color on the DOT Yellow Color Tolerance Chart. As you indicate in your May 15 letter, it was felt that the test results of a spectrophotometer would be less subjective than comparing color chips.

The test results from the Engineering Report indicate that the number 7 shade of yellow on the sample cylinder is a very close match to the central color on the DOT Yellow Color Tolerance Chart. Based on these results and our review, we agree that sample number 7 is the best color match and conforms to the color standards of the HMR.

I trust this information is helpful. If we can be of further assistance, please contact us.

Sincerely,

Edward T. Mazzullo
Director, Office of Hazardous
Materials Standards



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May 15, 2009

Mr. Edward Mazzullo, Director
Office of Hazardous Materials Standards
Office of Hazardous Materials Safety
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
East Building, 2nd Floor
Washington, DC 20590
Attention: PHH-10

Dear Mr. Mazzullo,

Thank you for updating me on the letter that we requested, stating it would be acceptable to place a yellow oxygen label over the current oxygen label printed on the cylinder. I look forward to receiving it on Monday.

In our meeting on Thursday, I was asked to take a sample cylinder with the 16 shades of yellow and have it analyzed with a Spectrophotometer to determine which shade of yellow, if any, would match the central color on the DOT Yellow Color Tolerance Chart. It was felt that the test results of a Spectrophotometer would give us a positive result and be less subjective than comparing color chips.

After our meeting on Thursday, I contacted our Engineering Department and asked them to take the sample cylinder to a lab that could compare the 16 shades of yellow on the cylinder to the DOT Yellow Color Tolerance Chart. The results of the test indicate that the number 7 shade of yellow on the sample cylinder is a very close match to the central color on the DOT Yellow Color Tolerance Chart. I have attached a copy of the Engineering Report for your review.

I look forward to hearing from you after you have had a chance to look over the test report.

I would like to thank you and all of the DOT associates that have helped us resolve this issue.

Sincerely

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REVISIONS			
LTR	DESCRIPTION	YR-MO-DY	APPROVED

DOCUMENT NUMBER ER090515

ENGINEERING REPORT ON
 COLOR MATCHING OF YELLOW LABEL
 PER 49 CFR 172 APPENDIX A



THE RESPIRATORY GROUP
 4150 Carr Lane Ct.
 St. Louis, MO 63119

SIGNATURES		MO-DY-YR	THE RESPIRATORY GROUP ST. LOUIS, MISSOURI		
DRAWN	BILL DEAN	05-15-09	ENGINEERING REPORT ON COLOR MATCHING OF YELLOW LABEL		
CHECKED	LANNY DEORICH	05-15-09	PROJECT		
APPROVED	ROBERT SEVER	05-15-09	SIZE A	FSCM NO.	DRAWING NO. ER091515
CONTRACT NO.	SCALE		SHEET 1 OF 4		

1.0 SCOPE

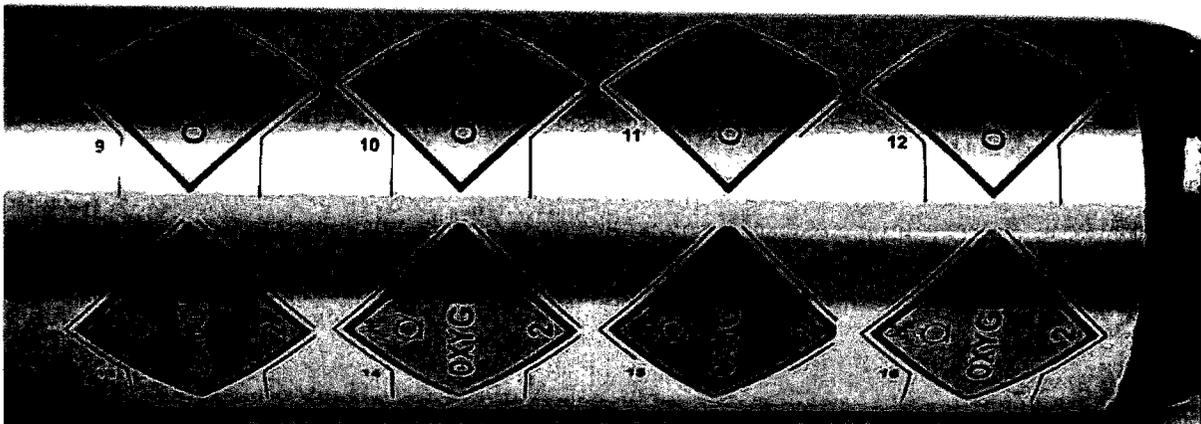
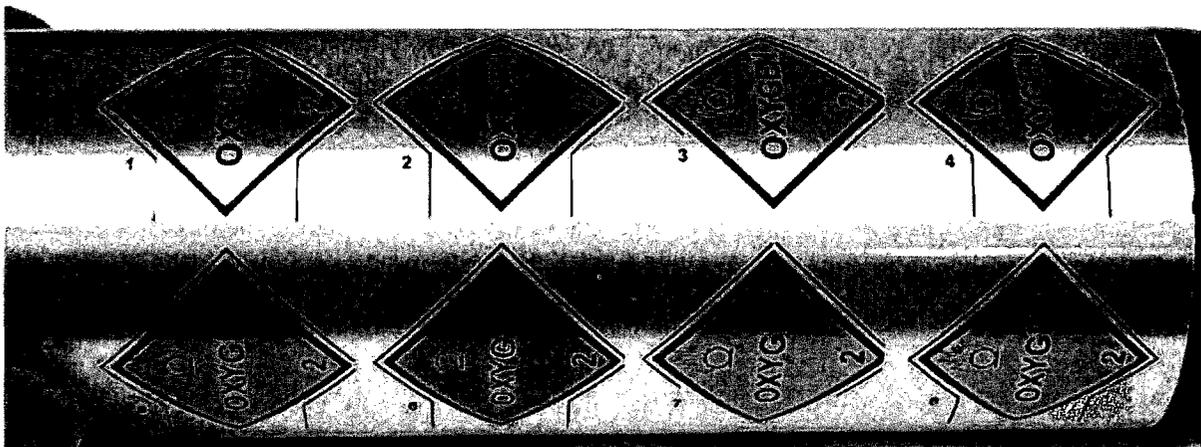
The purpose of this report is to determine what shade of yellow is most appropriate for use on the yellow oxygen label used on medical oxygen cylinders.



1.1 Test Samples

Sixteen yellow labels were applied to two separate M6 cylinders. Each label had a different shade of yellow.

One cylinder was used for color testing and the second was given to Helen Engrum at the Office of Hazardous Materials Standards.



SIZE A	FSCM	DRAWING NO. ER090515	REV
SCALE		SHEET	2 OF 4

2.0 CONCLUSIONS AND RECOMMENDATIONS

1. Of the sixteen shades of yellow, sample 7 was the closest match to the Central Yellow color.
2. The Lab coordinates of sample 7 were:
 - a. $L = 75.957143$
 - b. $a^* = -2.9557143$
 - c. $b^* = 67.572857$
3. The Lab coordinates of the Central Yellow color printout were:
 - a. $L = 78.73$
 - b. $a = 0.47$
 - c. $b = 69.94$
4. The difference, or ΔE , between the two colors is 2.45.
5. The third party test lab, Group 360 Visual Communications, listed sample 7 as a good visual match to the Central Yellow Color due to the ΔE of 2.45. Their general guidelines are as follows:
 - a. ΔE of 0-3 is a good visual match
 - b. ΔE of 3-7 is a fair visual match
 - c. ΔE greater than 7 is a poor match
6. The RGB values used to print Sample 7 on the cylinder were:
 - a. $R = 255$
 - b. $G = 222$
 - c. $B = 0$
7. Any cylinder labeling applied by TRG after May 15, 2009 will have a warning label with the same color shade of yellow as sample 7.

3.0 TESTING

3.1 Test Procedure

The printed cylinder and a copy of the DOT Yellow Color Tolerance Chart, referenced by 49 CFR 172 Appendix A, was sent to a third party test lab.

Each of the 16 yellow labels printed on the cylinder were compared to the Central Color on the Yellow Color Tolerance Chart.

The analysis of the colors was done using an X-RITE 528 Spectrophotometer. The color coordinates were read using the CIE Lab coordinate system.

3.2 Test Results

See Appendix for test results.

SIZE A	FSCM	DRAWING NO. ER090515	REV
SCALE		SHEET 3 OF 4	

APPENDIX

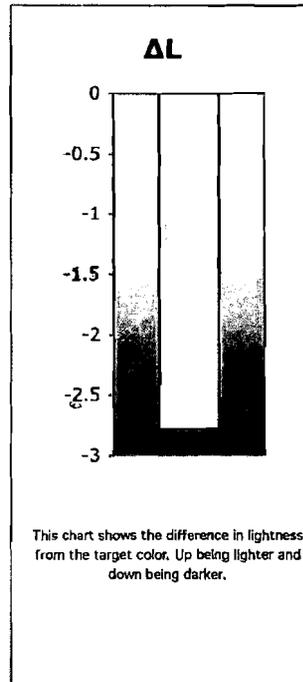
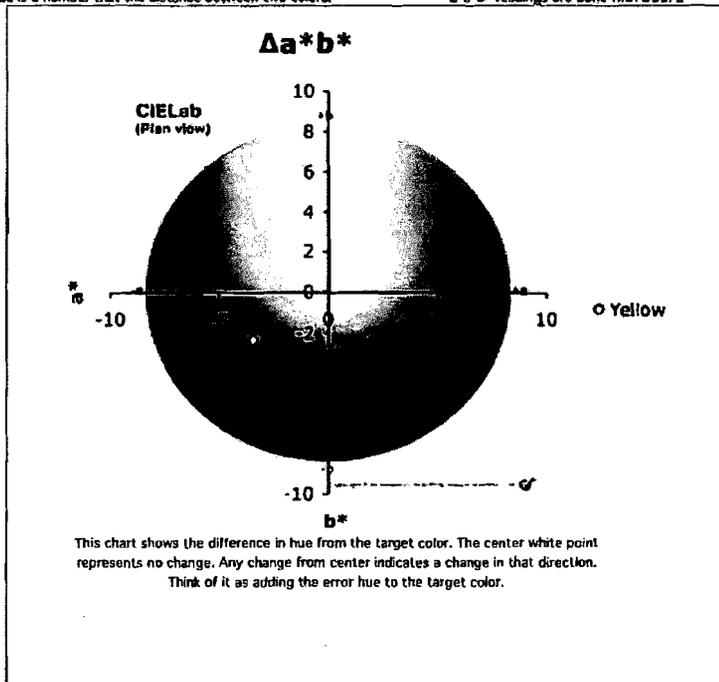
SIZE A	FSCM	DRAWING NO. ER090515	REV
SCALE	SHEET		4 OF 4

Orion Oxygen Yellow 5/14/09

	Reference			Sample # 7				
$\Delta E_{cmc2:1}$	L	a*	b*	L	a*	b*		
Yellow	2.45	78.73	0.47	69.94	75.957143	-2.9557143	67.572857	The Sample is a Good Visual Match

ΔE is a number that the distance between two colors.

L*a*b* readings are done with D50/2°





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May 11, 2009

Mr. Edward Mazzullo, Director
Office of Hazardous Materials Standards
Office of Hazardous Materials Safety
Pipeline and Hazardous Materials Safety Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
East Building, 2nd Floor
Washington, DC 20590
Attention: PHH-10

Dear Mr. Mazzullo,

I had a very nice conversation with Ms. Helen Engrum today. We appreciate her time with me to address the issue of the color of yellow we have on our current oxygen cylinder label.

I sent samples of the label printed on the cylinder to DOT on May 5th 2009 for review after a gas company refused to fill our customer's cylinders. After examining the cylinders, Ms. Engrum called me today to inform me that it was the opinion of the DOT that the color of yellow used on the label was incorrect. Although we do not agree with this, we understand that we have two options with regard to the cylinders already in the fields.

- 1) Request permission to use the 6,836 cylinders currently in the field as is by applying for a "Special Permit" for this quantity. All future labels would use a shade of yellow more agreeable to the DOT.
- 2) The second option was to place a label with a more agreeable shade of yellow over the existing label currently on 6,836 cylinders in the field.

We would prefer that DOT grant permission to use the cylinders, as is, however we are not sure how long this process would take. Our customer is in a difficult position needing oxygen for its patients, so we must resolve this as quickly as possible. Please advise.

With regard to the second option, the gas company filling the cylinders informed me that they would not fill the cylinders if we installed a label over the existing label unless we received approval from the DOT in writing to do so. If we received such permission in writing, this would certainly alleviate our current dilemma for the moment. Please advise as to this option.

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I would also like to send you a sample of a shade of yellow we are considering using on the label to make sure we are in agreement and that the DOT would not object to this new shade of yellow.

I would like to thank you and all of the DOT associates for your time on this issue. We would appreciate an immediate response since we have an issue which needs immediate attention.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert E Sever', written over a white background.

Robert E Sever
VP of Engineering
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Customer Service: (877) 877-3774 or (888) 443-7210
Fax: (314) 645-0499 Toll Free Fax: (888) 207-8802

1. TO: Associate Administrator for Hazardous Materials Safety
Pipeline and Hazardous Materials Safety Admin
U.S. Department of Transportation
1200 New Jersey Avenue, SE, East Building, 2nd Floor (PHH)
Washington, DC 20590
Attention: PHH-31

2. FROM: The Respiratory Group, Inc. (TRG)
4150 Carr Lane Ct.
St. Louis, MO 63119
TRG Agent: Bob Sever 314-659-4321

3. *If the applicant is not a resident of the United States, the applicant must designate an agent for service in accordance with 49 CFR 105.40.*

Does not apply.

4. *For a manufacturing special permit, one must provide a statement of the name and street address of each facility where manufacturing under the special permit will occur.*

Cylinders and their labeling are manufactured at the TRG facility.

5. *If confidential treatment is requested, the applicant must comply with 49 CFR 105.30(a).*

Confidential treatment is not required.

6. *State the citation(s) of the specific regulation from which relief is sought.*

49 CFR 172.407(d)(4) is the citation for which TRG is seeking a special permit for a modification.

7. *Specify the proposed mode or modes of transportation.*

The modes of transportation are by standard freight and trucking lines.



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8. *Provide a detailed description of the proposed special permit (e.g., alternative packaging, test, procedure or activity) including, as appropriate, written descriptions, drawings, flow charts, plans and other supporting documents.*



The color of the Oxygen label used on a medical oxygen cylinder is supposed to be within a range of colors given by the color data shown in Appendix A, Table 1 of CFR 172. The color, Pantone 109U, may also be used to achieve these colors.

Samples of the 6836 cylinders, that are already manufactured, have been sent to DOT for assessment of the yellow shade used. The shade of yellow was deemed to be unacceptable. For this reason, we asking for this special permit to use the cylinders as-is.

9. *Specify the proposed duration or schedule of events for which the special permit is sought.*

The special permit is for 6836 cylinders. Future manufacturing would incorporate a yellow label with a shade approved by DOT.

10. *Provide a statement outlining the applicant's basis for seeking relief from compliance with the specified regulations and, if the special permit is requested for a fixed period, a description of how compliance will be achieved at the end of that period.*

TRG is seeking relief from this compliance in order to supply the end-user with oxygen in a timely fashion.

11. *If an emergency special permit is requested, the applicant must comply with 49 CFR 107.117 and provide a statement of supporting facts and reasons.*

An emergency special permit is being requested so that any delays supplying oxygen to the end-user will be minimized. These delays can result in oxygen therapy patients experiencing health problems due top hypoxia.

12. *Identify and describe the hazardous materials planned for transportation under the special permit.*

High Pressure Medical-grade Oxygen will be transported in the cylinders.



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13. *Provide a description of each package, and include a specification or special permit number, as applicable, to be used in conjunction with the requested special permit.*

The package is an aluminum cylinder designed to store and transport high-pressure medical oxygen.

14. *For alternative packagings, the applicant must provide documentation of quality assurance controls, package design, manufacture, performance test criteria, in-service performance and service-life limitation.*

Not applicable

15. *The application must demonstrate that a special permit achieves a level of safety at least equal to that required by regulation, or if a required safety level does not exist, is consistent with the public interest.*

The risks involved in granting the shade of yellow used to print the oxygen label on the 6836 cylinders are no greater than a label printed with exactly the correct color.

The shade used is definitely a shade of yellow. The only debate is to whether it is within a pre-determined tolerance of yellow shades.

In a real world application, this becomes irrelevant to the end-user as they can clearly read the text, "OXYGEN" on the label.