

## **“AUTOMOTIVE PLANT” Validation Study: Molding Operators**

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**Conducted by The Executive Group**

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### **Summary of Findings**

The 16PF was administered to determine if there was a correlation between personality characteristics and good performance on the job. The 16PF is a highly validated personality test, which measures characteristics along 16 dimensions and 5 global areas. We used the same two groups to evaluate the 16PF dimensions of an ideal profile for a high performer and the PAQ interview. The results from the focus group varied from the actual results in some dimensions predicative of traits exemplified by the higher performers.

All participants that took the 16 PF were evaluated on an overall performance scale ranging from 1-5 by their Shift Coordinators and Team Leaders. Out of the validation study came a customized *The Personnel Report* to be used exclusively for hiring Molding Operators at “AUTOMOTIVE PLANT”. It is a selection tool that should produce a higher percentage of desirable employees than does the current method. The overall performance ratings for the subjects of this study included 11 people rated poor (at 2), 33 rated mediocre (at 3), 49 rated good (at 4), and 11 rated as top performers (at 5). It is interesting to consider what would have happened if these same 104 employees had been screened with the recommended procedure. Then, rather than 42% being rated poor or mediocre, only 21% would be rated poor or mediocre, since the others would not have been hired. In other words, the recommended selection procedure shows promise of reducing the percentage of mediocre and poor performers by half.

Participants in the study included 77 current Molding Operators, 15 Headliners, 3 Materials Operators, and 9 Team Leaders. The entire sample was used in the data analysis, since many of the other employees were once Molding Operators. However, the resulting analysis was cross-checked on Molding Operators only, and the resulting selection method worked comparably on them and the entire group. In fact, if the “AUTOMOTIVE PLANT” Molding Operators scale were applied to the current molding operators with the recommended cutoff of 4.5, the number of poor and mediocre employees would have been reduced by 39%, while all the top performers and 97% of the group rated “4” would have been retained.

Study participants include 76 men and 28 women. Seventy-six subjects identified themselves as White, 14 as Black, 9 as Hispanic, 3 as Asian, and 2 as Other. There were no significant trends toward rating any race or either sex above or below the others. The recommended selection procedure, in this sample, is gender-neutral and race-neutral.

Data analyses treated the overall performance ratings as provided by "AUTOMOTIVE PLANT". For ease of discussion, though, we will lump those rated 4 or 5 together, and those rated 2 or 3 together. The high group was somewhat more reserved (A-), verbally facile (B+), tough-minded (I-), and practical (M-) than the low group, and they scored somewhat higher on Workplace Coping Skills. Many of the factors found to be associated with good work performance did not differentiate between the groups, as the entire sample scored higher than the general population on conventionality (G+) and orderliness (Q3+). The highest correlations between "Years with Company" and the 16PF were positive correlations with G+ and Q3+ and negatively with the number of Areas of Potential Concern. The group as a whole was also less robust than the general population on some measures of personal adjustment, which feed into Workplace Coping Skills. A cutoff on this Performance Factor is recommended at above or equal to 3.9 (on a scale of 1 to 10) to help exclude individuals whose coping skills may not be suitable for this job.

The Executive Group's analysis of the validation study data led to the development of the "AUTOMOTIVE PLANT" Molding Operator's scale. This scale consists of the items that optimally differentiated the study participants according to their overall performance ratings. The score on the scale will be reported on the last page of *The Personnel Report* when the subject is applying for a position as a Molding Operator. The raw scores from the items will first be converted to "sten scores" analogous to other scales on the personality test. In other words, they will be processed using an average score of 5.5 on a scale of 1 to 10, and a standard deviation of 2.0. Thus, about 70% of subjects should score above 4.5, which is the recommended cutoff. The study participants' scores on this scale are presented below.

**"AUTOMOTIVE PLANT" MOLDING OPERATORS SCALE**

Overall performance rating:	2	3	4	5
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Score <2.5	3	1	0	0
2.5 – 3.5	3	5	2	0
3.5 – 4.5	2	5	0	0
Score > 4.5	3	22	47	11
Total	11	33	49	11

As can be seen from this table, all of the 11 top performers rated at '5' and 47 out of the 49 employees rated '4' scored above 4.5 on this scale. In conjunction with other sources of information, including work history and background check, and in conjunction with other information in *The Personnel Report*, this scale has the potential to reduce the percentage of poor and mediocre workers hired at "AUTOMOTIVE PLANT".

## **ADDITIONAL COMMENTS**

*The Personnel Report* will aid in the selection process and support the information from reference checking and the structured interview to help provide objectivity and reduce the subjectivity of selection. The new interview process with revised format and questions will aid in that process as well. The objective here is to improve employee productivity and reduce poor selection decisions. This can be accomplished by using the features of the Personnel Report, specifically the Areas of Potential Concern and in the Performance Factors section the Personal Responsibility/Self-Control and Workplace Coping Skills. Additionally, using the Molding Operators Scale supports the hiring process because it predicts better performance.

## **RECOMMENDED PROCEDURE USING THE PERSONNEL REPORT**

Personality test data should not form the sole basis for personnel decisions. Consider these points when using *The Personnel Report* to hire Molding Operators:

1. Consider very carefully any applicant with two, and especially three, Areas of Potential Concern. There should be supportive material from other sources for a positive hiring decision.
2. In the Performance Factors section of *The Personnel Report*, Personal Responsibility/Self-Control should be 4.5 or higher, and Workplace Coping Skills should be 3.9 or higher. If either of these factors is in the questionable range, a hiring decision should be well supported by interview data and/or a review of past work history.
3. The personality factors on the "AUTOMOTIVE PLANT" Molding Operators page at the end of *The Personnel Report* should be reviewed for "goodness of fit."
4. The "AUTOMOTIVE PLANT" Molding Operators Scale should be evaluated, with scores over 4.5 considered desirable and scores under 4.5 considered questionable.